
TRANSCRIPT OF PROCEEDINGS,
SUBCOMMITTEE ON BAY AND WATER POLLUTION

July 1-2, 1958
City Hall
Newport Beach, California

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ASSEMBLY INTERIM COMMITTEE

ON

CONSERVATION, PLANNING AND PUBLIC WORKS

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SUBCOMMITTEE ON BAY AND WATER POLLUTION

July 1-2, 1958

Newport Beach, California

CHAIRMAN CHARLES W. MEYERS: My name is Charles Meyers, Assemblyman from San Francisco and Chairman of the Subcommittee on Bay and Water Pollution of the Interim Committee on Conservation, Planning and Public Works.

The hearing we are conducting in Newport Beach today and tomorrow is for the explicit purpose of receiving testimony relative to the problems of pollution of the water of the State of California, and more particularly those in the general area around Greater Los Angeles. In the fall of last year this subcommittee conducted a similar hearing in San Francisco at which time very valuable information was given the committee and recommendations were made by the committee that Pollution Control Boards and the departments of State government which had an interest in the problem of water pollution formulate recommendations and improvement of the Water Pollution Control Act, the act under which these agencies operate to fulfill their obligations to the people of the State of California.

I might say that I note from the invitations extended by the committee that we have had a very good result in the attendance here today. At the same time, I know you will agree from the agenda, which is a very heavy one, that we will have to conduct this meeting very concisely in order that we might have sufficient time to hear all the witnesses. In the event that there are any in the audience who have previously indicated a desire to be heard, we'll take care of them, and I invite you to fill out the forms which are being passed out by the sergeant-at-arms and give them to the members of the staff. In the event that time runs out, we request that you present your testimony in written form to the secretary so it can be included in the official records.

At this time I would like to introduce the members of the committee. We have eight members of the Subcommittee on Bay and Water Pollution, and we are fortunate this morning to have a number of other committee members who were here yesterday for a programming meeting of the full committee on Conservation, Planning and Public Works. First I'll introduce the members of the committee. To my right, Assemblyman Don Allen from Los Angeles; next to Don is Assemblyman Donald Doyle from Contra Costa County; then to my right is Assemblyman Bruce Sumner, in whose district we are holding this meeting; to my left is Assemblyman Eugene Nisbet from Upland, California; then, the chairman of our full committee, Assemblyman Francis Lindsay from Loomis; seated next to Assemblyman Lindsay is Assemblywoman Pauline Davis from the mountain counties, the northern part of the state. I see out here in the audience, Assemblyman Harold Sedgwick, also from the mountain country, and

Assemblyman Frank Belotti, a member of this committee, who is from Eureka.

Now we will get on with the committee agenda. First to come before the committee is Mr. Rawn, who is the chairman of the State Water Pollution Control Board. Mr. Rawn has sent the members of this committee a copy of the joint statement of the State and Regional Water Pollution Control Boards. This information was requested when we had the meeting of our committee in San Francisco last November, and I know that a great deal of preparation has gone into these recommendations so Colonel Rawn, will you please give the recommendations to this committee.

MR. A. M. RAWN: For the purpose of this presentation, I am Chairman of the State Water Pollution Control Board. I will just briefly review the water pollution control system in the State of California. It is administered by nine regional boards and one State board. You requested that the State board prepare the recommendations which it felt desirable to clarify or, of course, better the rules and regulations of the State Water Pollution Control Act.

In compliance with that request, I will present here what are the survivors of the recommendations which have been made by the Department heads' task force, comprising the five department heads of the State Departments of Agriculture, Fish and Game, Public Health, Natural Resources and Water Resources, and those which have survived from the presentation of the several regional boards. Many of the group of recommendations which are identified by the capital letters and which would normally indicate that they were a presentation of the regional boards were also presented in a list which was presented by the task force of the department heads.

From page 3 of the report,^{1/} Recommendation A, the principle of coordinated action is already incorporated in 5. It is recommended that the Legislature further emphasize the principle by (1) recognizing and declaring that the State and Regional Boards are the principal agencies responsible for the control of water pollution in California. (2) declaring that these boards are directed to obtain a coordinated water pollution control program in this state and (3) requiring that other state agencies cooperate with the Water Pollution Control Boards in obtaining coordinated action.

At meetings among the several executive officers of the regional boards and the meeting of the state board, five of the regional boards endorsed this recommendation. Three regional boards and the state board did not because they believed that the principle of coordinated action is clearly provided for in the

^{1/} Report referred to is "Joint Statement of the State and Regional Water Pollution Control Boards to the Subcommittee on Bay and Water Pollution, Assembly Interim Committee on Conservation, Planning and Public Works." Full report available in Committee Office, Room 3126, State Capitol, Sacramento, California.

Act and that the correction of problems in this respect is an administrative matter.

Recommendation B: That the State agency or agencies responsible for the formulation of long-range plans for development and protection of water resources be directed to collaborate with the Water Pollution Control Boards in matters of water quality as it relates to sewage and industrial wastes. Two of the Regional Boards endorsed this recommendation, six of the Boards and the State Board did not endorse it. Five boards and the State Board expressed the opinion that this problem can be handled administratively under existing statutes.

Recommendation C: That the membership of the Regional Boards be increased by appointment of one person associated with water use for recreational and/or wildlife, provided that the person so selected shall not be connected officially with any federal, state or local agency having regulatory powers in this field, and without reading it, I may say that received the unanimous endorsement of all of the boards. Four regional Boards gave unqualified endorsement to that, the endorsing boards, and so forth. That was not unanimous, Mr. Chairman. That's my error.

CHAIRMAN MEYERS: Is this the copy that you sent to the members of this committee on May 2, or are you reading from a later copy?

MR. RAWN: I'm reading from that copy, Mr. Chairman, and if it's going to take up too much time, I'll be very happy just to comment briefly on what we have done and to leave the matter in your hands, because the data is all here.

CHAIRMAN MEYERS: Well, Mr. Rawn, to be very frank with you, I think that your testimony before this committee is of considerable importance, and I think it would be advisable if you would proceed to go through the facts that you have, eliminating the unnecessary facts as you proceed. We'll leave it to your judgment.

MR. RAWN: Recommendation G: That the Water Pollution Control Act provide for appropriate legal action, for example, misdemeanor, a mandatory injunction for failure of a discharger to file a report. Eight of the regional boards and the State Board endorsed this recommendation. The State Board and one of the Regional Boards qualified their endorsement.

Recommendation H: That the Water Pollution Control Act authorize the Boards to prescribe requirements for any existing waste discharge. Eight of the Regional Boards and the State Board endorsed this recommendation.

Recommendation I: That Water Pollution Control Act provide for appropriate legal action, for instance, misdemeanor or mandatory injunction for failure or refusal to submit technical

reports requested by Control Boards. Eight of the Regional Boards and the State Board endorsed this recommendation. Understand that all of these endorsements were not unanimous. There was some disagreement among the board members on practically all of them, but the Boards themselves, by majority action, did endorse them.

ASSEMBLYMAN BRUCE SUMNER: On H, was that the one that received the endorsement of the eight boards, was that that the Boards set the discharge requirements?

MR. RAWN: Yes, prescribes requirements for any existing waste discharge.

The greatest difficulty that has been encountered in the administration of this Act is to correct existing discharge. It's not so difficult to prescribe the limitations and requirements for proposed waste discharges, but to correct an existing one is a great deal more difficult.

ASSEMBLYMAN SUMNER: In other words, eight of the Boards agreed that you should set the requirements for discharge before discharge into the streams?

MR. RAWN: No, that is already done. This is to set requirements for existing discharges where the Control Boards have had no say in the discharge requirements.

ASSEMBLYMAN SUMNER: All right. I thought what happened was that the requirements were set on the basis of what the degree of pollution might be in the stream itself.

MR. RAWN: That's precisely it. The discharge requirements are that certain standards be maintained in the receiving stream. But those requirements are applied to a proposed discharge. They're not so easily applicable to an existing discharge which has been polluting and contaminating the streams for many years.

ASSEMBLYMAN SUMNER: Then you are not proposing a change in the checkpoint, in other words, from the stream, as it is now, to the discharger.

MR. RAWN: No, we are not. Not by the action of these recommendations. You may hear more of that before the day is over.

Recommendation J: By the way, with this Recommendation I, Mr. Chairman, to provide for appropriate legal action, for example, misdemeanor or mandatory injunction for failure or refusal to submit technical reports when requested by the Control Board, it might be well to state that in connection, not with this, but similarly, we addressed a letter to your board on the matter of issuing cease and desist orders to those who are in violation of

the Pollution Control Board actions and without recommending any one of the courses specifically, we have assumed that this committee will select that which it deems most appropriate if any change is made in the current Act.

MR. RAWN: Recommendation J: That the Water Pollution Control Act specify that Regional Boards may require submission of technical reports for any existing waste discharge. Well, obviously that's a perfectly appropriate action and endorsed by all of the boards.

Recommendation K: That the Legislature authorize the State Water Pollution Control Board to publish biennial progress reports. There was no objection to that on the part of any Board.

Recommendation 5: Now this is one which was specifically recommended by the task committee comprising the five department heads - that the Water Pollution Control Act declare that no disposal of waste to the waters of the state shall preclude future use of such waters for other beneficial purposes. The State Board and two Regional Boards, 4 and 6, endorsed this recommendation. Regional Board No. 8 did not endorse it and the remaining Regional Boards took no action relative to this recommendation. It may be well to point out to you that just because these recommendations appeared here it is not necessarily a case that all of the boards have acted upon them. But one of the boards must have.

Recommendation 15/16 is also one which originated with the five departmental head task force that the Water Pollution Control Act be amended to: (A) Make compliance with waste discharge requirements mandatory, (B) Provide that failure to comply with such requirements constitutes a violation of the Act, (C) Authorize the Water Pollution Control Boards to initiate injunctive action against waste dischargers who fail to comply with such requirements. The State Board and one Regional Board, No. 6, endorsed this recommendation. Three Regional Boards, 3, 4 and 8 did not endorse it, and the remaining boards took no action relative to this proposal.

There are some miscellaneous and additional recommendations of individual boards to the effect that (1) one board recommends the removal of the statutory salary limitations. It was not endorsed. (2) Regional Board No. 5 recommends that Section 7076 of the Water Code be amended to relieve the regional boards of the responsibility of receiving and filing water well drillers' reports, a subject of long-standing controversy in our board and a great deal of discussion.

I believe the letter to which I referred, Mr. Chairman, is dated June 24, the one in which the State Board recommends to the subcommittee that the following amendment be considered as an alternate means of improving the enforcement procedure of the Water Pollution Control Act: To amend 13060 of the Water Code to read as follows: "When it appears to a Regional Board that

the discharge of sewage or industrial waste within its region is taking place contrary to any requirements prescribed by the Regional Board, the Board shall issue an order to cease and desist, directing those persons, firms or corporations not complying with the requirements to comply forthwith."

Closing my comments to you, in addition to submitting this report which is the product of a great deal of work on the part of the executive officers of all of the committees on the task force which was appointed, I wish to say that we feel that the Boards have done and are doing the job as well as they can under the existing law. We believe in the principle of local autonomy in these matters and believe it will work and that the coordination of all of the forces which may compel observance or may be interested in observance or may be interested in other factors relating to water pollution control are amply safeguarded by these matters; and the suggestions we have made are not to change the philosophy of the law, not to change the philosophy of the Act, but rather to strengthen some of those conditions and facets of it that are not now too readily enforceable.

ASSEMBLYMAN FRANCIS LINDSAY: Mr. Chairman, I'd like to ask the Colonel one question, if he would tell us, what procedure the Boards have at their command if a community refuses or fails to take care of a discharge of sewage that is polluting an area or a stream or a bay.

MR. RAWN: The Regional Boards and the State Board also have the authority of the law to compel compliance. In the case of one of the outstanding failures to comply, the matter was the subject of two or three public hearings and eventually the city which was disregarding the regulations did comply. I'm not a lawyer, Mr. Lindsay, and I'd have to give this to you in lay terms. The matter is taken to court by injunctive procedure, I believe it's called, and a public hearing is held to determine whether or not there is compliance with the law and after it is determined that there is not compliance and after the transgressor, so to speak, has exhausted his administrative relief, he is simply taken to court and compelled to do it.

ASSEMBLYMAN LINDSAY: Well, you take a community to court and I understand you can bring a contempt-of-court proceeding against the City Council, but this doesn't solve the problem if the people of a community refuse to pass a bond issue.

MR. RAWN: Well, I have seen that in trial in the past in the County of Los Angeles, where all of the Council members were put in jail for a short period and that's about all they could do. Whether or not there are forces within the law which can compel a community to cease a nuisance or menace to public health, I don't know.

ASSEMBLYMAN LINDSAY: But there's not procedure at the present time where the Pollution Board or the State could step in and build a disposal system and charge the users for it.

MR. RAWN: None that I know of, Mr. Lindsay.

ASSEMBLYMAN DON ALLEN: The City you're speaking of, the City and County of Los Angeles, isn't it a practical matter that when they took the City Council of Los Angeles to court and these contempt proceedings were held over their heads, the members of the City Council refused to concur in any more tract maps and to allow any more building construction and that way we brought about a bond issue and floated a bond issue. In other words, we just wouldn't recognize any more subdivisions and it was brought about through economic pressure, but the other city refused to go and they took them all off to the county jail for a while.

MR. RAWN: I believe that was the political strategy, Mr. Allen. You're far better acquainted with that than I. I was speaking of the City of Vernon.

ASSEMBLYMAN ALLEN: Well, Culver City, also.

MR. RAWN: Yes, I think Culver City is in the same boat.

ASSEMBLYMAN ALLEN: As a practical matter, when you're faced with a situation like that through this injunction and also contempt procedure, why you've had it that's all there is to it.

MR. RAWN: Well, I can't answer Mr. Lindsay's question any better than that. I just don't know of any other course of action than you have described. I don't think that arises very often. I think the lack of interest in doing things that are appropriate and proper as far as pollution control is concerned is not the fault of the public, but largely the fault of public officials, maybe.

ASSEMBLYMAN ALLEN: In other words, Colonel, we in Los Angeles were fearful of going out to the people and laying it on the line with them at that one particular time back in 1938 and saying to them, "Here, this is the situation that has been accumulating." One doesn't like to make that step. I wasn't a member of the Council at that time; but, when the courts cracked down on the members of the City Council, they took their problem to the people, and the people responded.

MR. RAWN: Immediately.

ASSEMBLYMAN ALLEN: Responded immediately. There was no question about that. As a matter of fact, you have \$96,000,000 in that little Taj Mahal out there. By the way, you want to see it. It's the most beautiful structure in town. It's not as

functional as it should be, but it's beautiful. We'll have \$96,000,000 in there and I would say this publicly and presently - had we taken Colonel Rawn's recommendations to begin with, it would have cost us about \$18,000,000 at the time.

CHAIRMAN MEYERS: I'd like to ask, Colonel, the definition of pollution has been mentioned in previous testimony as being a problem area to consider, particularly with reference to the word "unreasonable" in the Act. This was discussed at our previous hearings. Would you advise the committee whether any change to this definition has been discussed by the State Board; and, if so, what the conclusions were?

MR. RAWN: It has been discussed at length, Mr. Chairman. Some method of eliminating the word "unreasonable" but to the best of my knowledge and belief, and certainly to the best of my hearing on the board, no substitute has as yet been discovered; and I believe I'm quoting our Deputy Attorney General correctly when I say that whether the word "unreasonable" is present or is not when the matter goes to court the reasonableness of it is determined at that time. So we have on the State Board, at least the majority of us have no substitute to offer for the word "unreasonable."

ASSEMBLYWOMAN PAULINE DAVIS: I might say that the word "reasonable" is very broad and gives a great deal of leniency, is that correct in your estimation? That would be my general opinion.

MR. RAWN: Yes, I think the rule of reason has to be applied to that sort of thing just as in anything. If it is unreasonable, then it probably appears so to a board constituted as any one of these Regional Boards is constituted. It may be unreasonable to some of those who apply for relief but the overall picture may look reasonable to them. I mean, not swayed by any ulterior or exterior motive, but just from their observation of it.

MRS. DAVIS: Well, Mr. Chairman, my interest in that word "reasonable" or "unreasonable" I might say has been brought up in the Legislature during this last legislative session in many aspects, and I certainly feel and I have been wondering for quite some time if some substitute could not be found for that particular phrase rather than force these conditions to actually go into court litigation for its determination and whether it was reasonable or unreasonable because of the costs involved.

MR. RAWN: We have had very, very little dealings with the courts in connection with the Water Pollution Control. Almost everything that has been done has been done by cooperation and by working together with those with whom we have influence in the State departments.

I recall, and Mr. Bonderson can correct me when he comes up here to the microphone, I can only recall one or two issues that

have ever gotten to court - if those did - I don't believe they did, did they? Mr. Bonderson can tell you better when he comes up.

MRS. DAVIS: Well, my interest in this matter, to clarify it a little bit more, is in the overall California water program and that is a very controversial issue within the state. The question of water pollution is certainly a very serious one and this word "reasonable" or "unreasonable" constantly is before us. It seems to me, and you have stated that the State Water Pollution Control Board has discussed the probability of finding a substitute, shall we say, for this particular phrase, and I personally am interested in the discussion of it a little further because of the part it's going to play in the overall water picture.

MR. RAWN: I expect you'll hear a good deal about that from the supplemental report which will be submitted this afternoon, I believe, by the department heads. I believe that the only substitute that can be devised for a term such as that would be to prepare and to adopt for the entire state certain water quality criteria which could not be violated, and that is an exceedingly difficult thing to do because of the fact that different waters are appropriate for different uses, and they must all be covered either initially or by a fixed yardstick or they must all be covered as the problem is approached, which is the "reasonable" - "unreasonable" attitude. The other would be the criteria established for the state. That is also a problem which confronts us still. We have attempted to establish water quality criteria and indeed one of the first acts of the State Board was to try that. Those who were involved in it at that time did a pretty fair job, but I don't think it's a substitute for the terms that you have just spoken of.

CHAIRMAN MEYERS: Well, as you can see, Mr. Rawn, there is considerable interest in this phase of the problem and that was the reason for my propounding the question; because we have had this matter before our committees and also had them discussed in Sacramento. I believe Mr. Harvey Banks will be on the agenda this afternoon, and he will speak for the five state agencies and then we can go into the subject further at that time.

The next person on the agenda is Mr. Paul Bonderson, who is Executive Officer of the State Water Pollution Control Board.

MR. PAUL BONDERSON: Mr. Meyers, members of the committee, I am the Executive Officer of the State Water Pollution Control Board. I appeared before your committee at its two previous hearings and should again like to express my appreciation for the opportunity to appear before you.

CHAIRMAN MEYERS: I'd like at this time to introduce two other members who have arrived at this committee: Assemblyman Sheridan Hegland from San Diego and Assemblyman Jack Beaver from Redlands.

I'd also like at this time to introduce the members of the staff. Directly in front of me is Dr. Sam Wood, who is a consultant to the committee; Mr. Jim Williams who is a staff member; the committee secretary, Mrs. Charlyne Little, and I see out in the audience in the front row, a new addition to the staff, who is going to contribute greatly to helping us with research, Mr. Charles Kunsman.

MR. BONDERSON: Mr. Meyers, this morning I should like to summarize and elaborate upon the progress report included in the joint statement that Mr. Rawn has just presented to you. This progress report was prepared by the ten boards and begins on page 8 of the joint statement.

The Control Boards recognize that there are unsolved problems and major tasks still confronting them. First and foremost there are a number of local cases of actual or threatened pollution existing throughout the state. Some of these pollution cases will take considerable time to bring about complete correction and except for a few isolated instances progress is being made for their ultimate correction.

The second type of problem or task facing the Control Boards involves the need for more technical end knowledge and information in certain fields.

A third problem area relates to continued administrative problems and here we have listed six categories in the joint statement. With relation to accomplishments, the water pollution control agencies, and more particularly the waste dischargers in California, can point to an impressive record of progress during the past eight years. This record has been achieved while confronted with a phenomenal 33 percent increase in population, coupled with comparable expansion of industry since 1949. When the Water Pollution Control Boards began to operate early in 1950 many communities throughout the state were discharging untreated or inadequately treated sewage. Today, with few exceptions, the adverse conditions existing in 1950 have been satisfactorily corrected. Of even greater significance is the fact that in the past eight years every new major sewerage or industrial waste system has been provided with adequate treatment and disposal facilities. I should like to emphasize this last point by repeating it. Every new major sewerage and industrial waste system has been provided with adequate treatment and disposal facilities.

Industrial waste. During the legislative hearings prior to adoption of the present water pollution control laws, the Assembly Interim Fact-Finding Committee on Water Pollution found that regulatory activity in the field of industrial waste disposal was limited. The interim committee report states that some 34 permits were issued to industries during the 40 years prior to the committee's investigation and that more than three-fourths of these permits were merely for disposal of sanitary waste from industrial

establishments. One of the principal accomplishments of the control boards has been the initiation and implementation of an extensive industrial waste control program. As shown in figure one over here on the easel, a total of 1,522 sets of requirements for industrial waste discharges have been established by the regional boards since April of 1950.

Industry has constructed a total of 1,160 waste treatment and disposal projects in the past eight years.

Figure 2 shows the number of industrial waste treatment facilities constructed during the eight-year period.

In no known instance has a significant new pollution problem been created by the discharge of industrial wastes. California's community sewerage construction program has also been a major factor in protecting state's waters from pollution by industrial waste, since many industries discharge their wastes directly into community sewerage systems where they are treated and disposed of along with the community's domestic sewage.

Regulation of waste. One criteria of activity and progress in the field of water pollution control is the record of waste discharge requirements prescribed by the Regional Boards. As depicted in figure one, which was originally up there, 644 sets of requirements have been established for community waste discharge; 1,522 for industrial waste discharges, and 1,469 for discharges from private systems such as labor camps, motels, service stations, schools, restaurants and resorts. In a majority of instances waste discharge requirements are being met; and, in those isolated cases where the requirements are presently being violated, the Regional Boards are maintaining a constant vigil to see that the discharger makes reasonable progress toward ultimate compliance with requirements.

Community disposal of sewage. The greatest gains in the prevention and abatement of water pollution have been in the control of waste in the 593 California communities that now have sewerage systems. Figure 3 has been prepared to illustrate the number of community waste discharges in each of the nine regions, both with and without treatment in 1950 and again in 1957. The columns to the left are the figures for 1950 and to the right are for 1957. The green indicates communities that have treatment facilities, the red indicates communities without treatment facilities, in other words, discharging raw sewage. This chart shows that whereas the total number of community waste discharges has increased from 474 to 593, a 25 percent increase, and those are the columns to the complete right of the chart, the number without treatment has decreased from 134 in 1950 to only 40 in 1957. In 1950, over 28 percent of the communities were discharging raw sewage into the waters of the state; in 1957, less than 7 percent did not have treatment facilities. The greatest decrease in number of raw discharges has occurred in the San

Francisco Bay Region No. 2. Figures 4 through 7 show four indices in the progress of control of water pollution from community waste discharges. As pictured in Figure 4, the sewered population in eight years has grown from 8,500,000 to 11,700,000, an increase of 38 percent. In 1950 only 75 percent of the sewered population had waste treatment facilities. Eight years later 98 percent, and I repeat that - 98 percent - of the sewered population had treatment facilities, and on this figure the green men indicate people served by systems having treatment facilities. The top row indicates December 1957 and you will notice that there are only about 250,000 people being served by systems not having treatment facilities, whereas in April 1950 when the Pollution Control Boards began operation, there were over 2,100,000 people being served by systems without treatment facilities whatsoever. In 1950 communities with a total population in excess of 2,100,000 were discharging raw sewage, but in 1957 this figure had been reduced to less than 250,000. The sewered population, 11,700,000 in December 1957 was approximately 82 percent of the total state population of 14,300,000. The sewered population figure represents the actual number of persons served by the sewers and do not reflect the large industrial waste load discharged into many community sewerage systems. California surely does not suffer by comparison with other states. Only a few states even approach the record that has been accomplished in California, and many states still have a sizable percentage of the sewered population served by systems without treatment whatsoever.

A second index of progress by the communities is the number of construction projects started each year for sewage treatment and disposal purposes. Figure 5 on the easel again illustrates the cumulative number of projects constructed each year since 1950. During this eight-year period, 916 projects were undertaken. This number of projects per year has been fairly consistent varying from 87 in 1950 to 139 in 1952. These projects included, in addition to completely new sewerage systems, modifications and additions to existing systems. Moreover, growth in some communities has been so rapid that two or more plant expansion projects have been necessary in these communities during the reporting period.

Community progress is also indicated by the amount spent on construction of sewage facilities. Between 1950 and 1957 over \$264,000,000 was invested in sewerage construction. As shown in Figure 6, the annual dollar value of construction was relatively uniform until 1955, averaging about \$28,000,000 per year. In the last two years, there has been a rapid acceleration in the rate of expenditure, with over \$46,000,000 spent in 1956 and almost \$76,000,000 contracted for in 1957.

The final index of progress made by communities in controlling pollution is the treatment plant capacity that has been

provided by construction projects since 1950. Figure 7 has been prepared to show the cumulative additional - I want to emphasize this additional - plant capacity in terms of population that can be served. During the eight-year period, treatment plant construction has provided additional capacity to handle the wastes from an estimated population of 10,500,000. This figure is over three times the actual increase in sewered population since 1950, clearly indicating that most California communities are looking into the future and are providing treatment facilities for anticipated population increases. It may interest the committee to know that a U. S. Public Health Service report covering a four-year period from 1946 through 1949 reports treatment plant capacity constructed in California during this 4-year period would serve a population of 2,600,000. This report would indicate that the rate of construction of plant capacity during the eight years the Water Pollution Control Boards have been in existence is approximately double the rate during the 1946-1949 period.

The progress report discusses briefly the successes that have been achieved through the cooperative approach. Other items included in the progress report are technical investigations, monitoring of waste, and research.

Conclusions. The following report of accomplishments and accompanying statistics are offered to demonstrate the progress in water pollution control that has been made under the program initiated by the 1949 legislation. Obviously, no single statistic nor all of the data combined tell the entire story. The number of plants built and the amount of money spent does not measure directly the positive results of pollution control. In a final analysis, the only true criterion of the effectiveness of California's pollution control program is the actual condition and quality of the waters of this state. The monitoring programs now being conducted by the control boards and the waste dischargers are designed to guarantee that water quality is adequately protected. Although as previously mentioned, there are always some localized problem areas. These monitoring programs have indicated that the waste discharge regulations of the regional boards are being met and the recognized beneficial water uses are being protected. State, local and federal agencies are continually measuring the condition of the state's water to insure that the quality is not adversely and unreasonably impaired. Under sponsorship of the state board, 150-station sampling program was set up in 1950 to check surface waters. Monthly samples are collected from 86 streams and lakes and are analyzed for physical, chemical, bacteriological, and radiological conditions. This sampling program has shown that with very few minor exceptions California surface waters are excellent in quality and that there are no unreasonable degradation of water quality that has occurred due to sewage and industrial waste. Mr. Meyers, that concludes my statement, but I would be most pleased to answer any questions you or the committee may have.

ASSEMBLYMAN FRANK P. BELOTTI: Mr. Bonderson, do you concur in the statement made by Colonel Rawn as to the authority of the Board in districts where the people fail to pass a bond issue to correct a sewage disposal situation?

MR. BONDERSON: Yes, sir. The Boards have the legal authority to seek relief through court action, but the courts as far as I know have no way of building the facilities and constructing them and charging the community for the work done.

ASSEMBLYMAN BELOTTI: Well, in a local situation, how about the local officials - the local Board of Health? Do they have any authority to bring any action to compel the district, for instance, to correct the situation? Or is it the State Board that has to go as far as the law will allow them?

MR. BONDERSON: Well, the local and state health authorities have certain responsibilities and authorities, but in the final analysis they would have to seek court action, also.

ASSEMBLYMAN BELOTTI: Then, assuming that they did seek court action, the only thing they could do, as the Colonel has mentioned, is to put a person in jail. But how would you correct the problem of sewage disposal? What would your recommendation be?

MR. BONDERSON: I think the experience would clearly show that when things got to the stage that a court action was necessary and the court ordered the community to do something, the community would comply. I have known of no place, at least here in California, where the community has not after such drastic action failed to do what is necessary. And consequently I would say that nothing is needed over and above what we already have.

ASSEMBLYMAN LINDSAY: Isn't it true that a local health group can actually issue an abatement proceedings against an individual or industry or anybody who fails to comply with an order to cease contamination that is detrimental to public health? In other words, they could close up a home or industry, couldn't they?

MR. BONDERSON: Yes, sir, they have the right to issue a preemptory order, but there again that is enforceable through court action only. Here again, I am an engineer and not a legal mind.

ASSEMBLYMAN LINDSAY: One other question I'd like to ask you. In all this expansion program of some \$214,000,000 I believe you outlined, the State has added only a very small contribution in loan funds.

MR. BONDERSON: The State has loaned to communities within the State only \$1,000,000.

ASSEMBLYMAN LINDSAY: Plus a little planning money from Chapter 20.

MR. BONDERSON: There were funds left over from the Chapter 20 program and the other grant program.

ASSEMBLYMAN LINDSAY: How much federal contribution has gone into this during this time?

MR. BONDERSON: There has been approximately \$4,000,000 in grants received from the federal government for the construction of sewage facilities during the last two years.

ASSEMBLYMAN LINDSAY: None before that?

MR. BONDERSON: None before that.

ASSEMBLYMAN LINDSAY: So the communities have actually taken care of almost \$210,000,000.

MR. BONDERSON: Well, actually it's \$264,000,000.

ASSEMBLYMAN LINDSAY: Approximately \$260,000,000 in expansion during this time.

MR. BONDERSON: Yes, sir.

ASSEMBLYMAN LINDSAY: Now, one of the problems we're faced with in some of our smaller communities-is there any check at all on the engineering design or the adequacy of engineering on some of these projects where communities with big federal funds are involved?

MR. BONDERSON: When a state grant is involved and when a federal grant is involved, the plans are checked by state agencies. If the project does not involve grant funds, there are no provisions for checking whether or not the facilities are adequate to meet the needs of the community.

ASSEMBLYMAN LINDSAY: We have a case in my district where either through improper design or inadequate design the main line joints of a rather steep line coming down the hills are not caulked, are not sealed. During this very wet spring there was so much ground water picked up that it blew the tops off the man-hole covers and we had the raw sewage running down the streets again. Now this was just poor engineering on somebody's part. And it just happens that the state made a loan to this particular district. This was the reason I asked, who's to blame in this case?

MR. BONDERSON: Well, I would say in this particular instance you cite that this is not a design problem - this was a construction problem - it would appear that there was not adequate inspection of the project when it was under construction. This is something, of course, that the state does not check on even

for the federal government when there are grants involved. They just check the plans and specifications. They do not follow through and inspect the project as it is under construction.

ASSEMBLYMAN LINDSAY: In this instance I understand it wasn't even called for in the plans and specifications. Did we simply miss something there, or what?

MR. BONDERSON: Apparently so.

ASSEMBLYMAN LINDSAY: Well, we just call your attention to it; and, as long as the state is making grants in aid to these districts, we certainly hope this doesn't happen again.

ASSEMBLYMAN BELOTTI: What is the status of the state funds, Mr. Bonderson, on loan to these local communities?

MR. BONDERSON: For all practical purposes, it is exhausted. There are no funds available.

ASSEMBLYMAN LINDSAY: Isn't it true, though, that as the funds return, that they can be reloaned?

MR. BONDERSON: Yes, sir, and we expect within several years to have sufficient to make another small grant.

ASSEMBLYMAN LINDSAY: You wouldn't guess how much is coming in each year?

MR. BONDERSON: As I recall, there'll be about enough to make a \$60,000 or \$70,000 grant in about four years, I believe. There's not much hope!

ASSEMBLYMAN LINDSAY: This is just something for the committee to hear. I know that there have been several attempts made to augment this fund, all of which ended in the wastebasket as far as the Legislature was concerned. This is one of the problems that we're faced with with some of these smaller communities in trying to break the bottleneck of which comes first - the chicken or the egg. It's as simple as that. If you have a sewage system your assessed valuation goes up high enough that you can afford to pay off your bonds; if you don't have the sewage system, you don't have the bonding capacity to build it. So where do we break this bottleneck? This is one of the problems we have in the smaller communities, isn't it?

MR. BONDERSON: Well, there surely is a demand or an interest in grants. We're just in the process of processing the third group of applications for federal construction grants. We have had for the three years applications each year from 60 to 80 communities, and we have only been able to certify between 16 and 24 per year. So you can see there are a lot of communities that are not getting grants that are interested in grants. The amount of grants being

requested are averaging about \$8,000,000 a year, and the State is only receiving about \$2,000,000, so we are only able to meet the requests of about one-fourth of the applicants' dollar requests.

ASSEMBLYMAN LINDSAY: Just as a matter for the record - maybe you don't even care to express yourself - but I notice in some of the requests for these grants they are actually coming from some of the major cities. Do you consider that this is a fair deal to assist them to expand rather than to build completely new systems for the smaller communities and counties or not?

MR. BONDERSON: Well, I'll answer you in this way. I think that the Boards' rules and regulations for you might say certifying or giving priority to these projects has worked very successfully in that these moneys are being placed where they can be best used.

ASSEMBLYMAN LINDSAY: Even if the major cities get some of it?

MR. BONDERSON: The major cities are requesting, but the major cities haven't gotten much yet.

MRS. DAVIS: Going back to the stipulation that Assemblyman Lindsay made pertaining to your statement that you actually didn't have the authorization of going in and inspecting a facility as far as the construction feature of it, do you feel, or would you say that perhaps you would care to have that responsibility in its final analysis to see whether or not the plant in itself after completion or during the time perhaps that it is being constructed is adequate for a community? For instance, let me clarify that a little further. I have some communities within my district which have received state funds, also federal funds, I might say, where during the planning stage as far as the adequacy of the water supply, I am sure that inspection was available, but during the construction of the facility and after it has been completed, perhaps it has actually been destroyed due to the fact of incompetency upon the engineers' part that constructed the facility; therefore, would you not say that when the community once again has to make an appeal to float another bond issue to correct a situation that that is inadequate as far as proper inspection and actually a waste of taxpayers' money in a case of that kind?

MR. BONDERSON: Well, I would say that the State Board's actions to date would indicate that they are not seeking such powers or authorities.

MRS. DAVIS: Well, now, who would you say, or would you care to recommend should have those powers and authorities? It seems to me that someone should have them because this situation exists.

MR. BONDERSON: Well, I would say it's the authority and the responsibility of the people who are constructing facilities to see that they do get proper and adequate facilities. That their

City Engineers - their staff - should supervise and see to it that these facilities are what they need.

MRS. DAVIS: But if some of these smaller communities do not engage or have the finances to engage a city engineer?

MR. BONDERSON: Well, there again, of course, they are relying upon supposedly competent consulting engineers to provide them with the facilities that they need.

MRS. DAVIS: What recourse would you say other than the ones I have actually witnessed, which I won't go into, that you might suggest that the community had as a comeback on those consulting engineers?

MR. BONDERSON: I have no suggestions. I'm sorry.

CHAIRMAN MEYERS: Mr. Bonderson, you were quoting federal figures there. Do those include federal expenditures as to Naval bases and so forth?

MR. BONDERSON: Yes, sir, that does include expenditures for federal facilities.

ASSEMBLYMAN LINDSAY: Chairman Meyers, I think that should be cleared a little bit. The figure that you're talking about that includes federal bases is the \$264,000,000 figure, isn't it?

MR. BONDERSON: Yes, sir. I might say that the communities have spent - I would guess - more than double that on sewerage facilities. This includes just treatment plants and outfalls. This does not include the trunk sewers and collection systems. This is just treatment and disposal facilities.

ASSEMBLYMAN LINDSAY: I thought the figure was a little low. And then on the second point, I think what the Chairman asked for on the federal figures was \$4,000,000. This was grants to the local communities and did not include federal installations - this was a grant deal, the \$4,000,000.

MR. BONDERSON: That's included in these figures. It also includes money spent by the Navy and the Army. These figures also include money expended by federal agencies in construction of treatment facilities for federal institutions.

CHAIRMAN MEYERS: Thank you for bringing that point out. The next person on the agenda is Mr. Hinckley, who is chairman of the Regional Water Pollution Control Board No. 8.

MR. HORACE P. HINCKLEY: Mr. Chairman and members of the committee, I have been chairman of the Regional (Eight) Water Pollution Control Board since its inception in December of 1949. We feel honored that you are meeting in our region today, and I would also like to point out that the mayor of your host city,

Newport Beach, has been a member of our regional board for the past several years.

CHAIRMAN MEYERS: Mr. Hinckley, would you kindly advise the committee as to what area is encompassed in Regional Board Eight?

MR. HINCKLEY: Region Eight - we have a map on the bulletin board at the present time - it encompasses about 2,800 square miles which is the Santa Ana River drainage area. It takes in practically all of Orange County and portions of Riverside and San Bernardino County, those portions of the upper counties that drain into the Pacific Ocean. This particular exhibit shows in green the irrigated and developed areas; the red, of course, is the cities; the yellow represents areas subject to expansion and growth as the suburban areas grow and as we get more water. Our board met in an all-day session passing on the matters which Mr. Rawn spoke to you about and our recommendations are covered in Appendix M to his report. At this time we have no further recommendations to make concerning specific legislation. We would, however, like to discuss and demonstrate the policies and long-range objectives adopted by the Board for the control of water pollution in our Region. Of particular importance to our region is the control of underground water. All too often we think of "water pollution" as only in surface streams and lakes and ponds. In our region, most all the water is underground - in other words, we have very few flowing rivers, hence some people might think we have no water pollution problems.

Actually the pollution of underground water is more serious than that of surface water. Subterranean water movement is slow and changes in quality are long lasting. Wastes discharged into cesspools, upon the ground or into stream beds will usually pass slowly downward, aided by percolating rainfall, eventually reaching and mixing with the underground water. Depending upon the soil porosity, volume of flow and presence of clay barriers, the effects of waste discharges may not become apparent for a number of years.

In 1952, our Board adopted a preliminary statement of Long-Range Plans and Policies with Respect to Water Pollution Control. The policies stated therein are currently those followed by the Board. The paramount specific policy of the Board is preventing and eliminating pollution of underground water. Second to this is preventing and eliminating pollution and nuisance in surface streams and in the ocean bays and tidewater areas. The Board also has encouraged the establishment of landfills for the safe disposal of various classes of wastes.

In 1954, a Resolution was adopted setting general policy with regard to establishment and operation of public and private dump sites. Landfill disposal areas have been grouped by class of materials dumped, dependent upon the soil formation and ground water uses in the vicinity of the disposal site.

In brief, we have classed all dumps into one of three classes. A Class One dump can take any and all kinds of wastes, that is, chrome or phenols or anything of that matter can be disposed of at that particular site. We only have one Class One dump in our region, and that is an old abandoned quarry which was about the only site that would qualify to take any and all wastes.

A Class Two dump is the usual site - city dump wherein materials are limited to household and commercial refuse. Here the groundwater table has to be sufficiently low or below the level of the bottom of the dump so that there can be no pollution.

Class Three sites are situated where little protection is afforded to the usable water. Materials deposited here are limited to inert substances, such as tree prunings, or just fill dirt, broken concrete, things of that nature.

For preserving the surface water quality in the region, the Board has acted on three specific sites. In conjunction with Region Four, we set standards for the tidal basin of the San Gabriel River and then in 1955 we prescribed water quality objectives for Warm Creek. We were rather embarrassed about that because a year or two after we set the standards the creek dried up. The Board is presently formulating objectives for waters of the Pacific Ocean. The beneficial uses of ocean waters which the Board intends to protect were adopted at our last meeting on June 6 of this year.

As mentioned before, the paramount concern of the Board is the prevention, elimination and control of ground water pollution. Within any ground water basin a salt balance exists. The salt balance is the gain or loss of minerals within a basin. The salt input varies directly with population, industrialization, agriculture and natural and imported water inflow. Salt output varies directly with water outflow, waste discharges to outfalls terminating outside the basin, and waste discharges to landfills. Water quality within and leaving the basin is dependent on the salt input and output and the quantity of water entering and leaving the basin. Water quantity is dependent upon the natural and imported inflow less the consumptive losses (evaporation and transpiration), discharges to outfalls and storage within the basin. Water pollution is therefore dependent upon many variables. Salt contributions from the wastes of the populace or from industry can be controlled and regulated. Agriculture return waters can be controlled in areas near saline or brackish water into which the return water may be discharged. The return of irrigation drainage water to the ground water or surface streams merely moves problems of increased salinity downstream. Natural water quality by definition is fixed by natural causes. Imported water quality is controlled only by the selection of the imported water source. Even then the imported source may change or deteriorate in quality as its watershed develops. Evaporation and transportation losses can be controlled only to a limited degree. With increased population and industry and continued agriculture uses of water these losses will increase. It is readily apparent that only

a few of the variables that cause minerals to increase in water can be controlled practically. The growth and development of an area will result in ground water deterioration. It is the rate of deterioration that can be regulated by water pollution control of domestic and industrial waste discharges.

We have set water quality objectives for eight of the ground water basins in our particular region and at present have contracted for investigations in three other ground water basins. Table 1 gives the limit values for various dissolved minerals in several basins and the Santa Ana River. Monitoring wells and stream sampling points are used to check for changes in water quality.

This group of figures on the right, of course, in parts per million the amount of chemical constituents that we say these particular waters in that particular basin will never be exceeded. The basin as a whole will not exceed that many totally dissolved solids or the various constituents there.

The Board, after consultation with other agencies, selects three wells to be used to monitor the effect of a waste discharge on the ground water basin. The wells are selected so that one well is located upstream of the point of discharge. This well is used as the sampling point for ground water unaffected by the discharge. Two wells are located downstream and serve as sampling points for water affected by the discharge. When setting discharge requirements for a specific discharge an incremental increase of chemical constituents equal to that of normal domestic use of water is allowed in the down stream well water over those found upstream.

In other words, you have one well up here, here's your discharge, and then you have two wells below here which monitor and it's the incremental increase from above to below the discharge that controls. An increase of 50 per cent or more of the values set as an incremental increase is considered to be a threat to pollution, at which time we call it to the attention of the discharger.

At the present, eighty per cent of the water used in the upper Santa Ana Basin is pumped from underground. In order to meet the demand the ground water is used and reused from two to three times as it travels from the foothills to Prado Dam. As the area in the upper basin develops and becomes more congested, more and more reuse of the ground water will result, if the present system of treating domestic sewages and industrial wastes and returning them to the basin continues. The dissolved minerals added to the basins from treated wastes plus the inevitable use of imported water will eventually result in mineralization of the ground water in excess of basin objectives. Based on present economics and technology, the remedy for such a situation is an outfall sewer into brackish or salt water. Even after modern treatment procedures of biological, chemical and mechanical processes for removing suspended and dissolved solids, considerable substances remain in solution which must reach some final disposal

place. Nature has caused the ocean to become salty due to the dissolving of minerals from the earth. The Board has advocated in their statement of long-range plans and policies that a sewer in the upper basin area with an ocean outfall is imperative for the orderly growth of the region and for the protection of the underground water resources. Of course, such a sewer should carry only treated wastes. Initially these should be segregated industrial wastes only.

The foregoing is presented to illustrate that control of ground water pollution is of great importance to water resources of the state and as such must be given at least equal consideration with surface water pollution control.

ASSEMBLYMAN BRUCE SUMNER: Mr. Hinckley, perhaps you can tell us whether or not in your opinion the water replenishment program as being carried on by the Orange County Water District, in other words, the placing of water back underground according to your records has aided in the maintaining of the quality of the water - the ground waters in this area? Whether it has had any effect on it or have you been able . . .

MR. HINCKLEY: Actually, we haven't set any standards for below Prado in Orange County. In other words, you're so close to the ocean here that there's no one below you to be protected. It's those ground water basins above Orange County that we have been concerned with. To specifically answer your question - I'm not qualified to - maybe our executive officer might.

ASSEMBLYMAN SHERIDAN HEGLAND: Would your job be easier if you had better water imported than Colorado River water?

MR. HINCKLEY: Very much so. Our job would be easier in the Santa Ana region if we had water available for import that was of better quality than the Colorado River water.

ASSEMBLYMAN HEGLAND: What proportion of the water in your area is Colorado River water?

MR. HINCKLEY: Well, actually, we have the Riverside Municipal District, the Chino Basin Municipal District, and then the Orange County Municipal District are the only parts of our region that are now using Colorado River water and most of it is being used in Orange County. Very little, quantity-wise, is being put to use in either Riverside or Chino Basin.

ASSEMBLYMAN HEGLAND: In Orange County, then, what is the proportion of Colorado River water?

MR. HINCKLEY: I'd rather let someone from Orange County answer that.

CHAIRMAN MEYERS: I assume that someone will be here from Orange County to answer that as we proceed through.

At this time I'd like to introduce two other members who have arrived - Assemblyman Bill Munnell from Los Angeles and Assemblyman Lloyd Lowrey from Rumsey, which is in the northern part of the state, and I believe Assemblyman Lowrey has a question to ask.

ASSEMBLYMAN LLOYD LOWREY: Well, I'd like to ask Mr. Hinckley how you locate and determine your two downstream monitoring wells with respect to the upstream well. Do you make a subprofile? Do you trace the flows of the water? Do you do it by guess?

MR. HINCKLEY: We have called on the Department of Water Resources and they bring their best technical assistance and with their advice together with the various flood control districts in each of our counties, we get all their recommendations.

ASSEMBLYMAN LOWREY: Do you put some coloring into the water be be sure that your upper monitor . . .

MR. HINCKLEY: I don't know that we've done that. We have actually drilled some wells to have the monitoring wells where we wanted them. The State has actually done that in one instance for us. The direction of flow in our groundwater basin here is pretty well determined - in other words, the slope is considerable and the water goes from the mountains towards the sea and these basins have been so thoroughly perforated with wells that the underground structure, compared to other parts of the State, I feel, is pretty well known in the Santa Ana region.

MRS. DAVIS: Going back to the question on the quality of water pertaining to the Colorado River water. Do you actually feel in your statement that you made just a few moments ago you felt that perhaps your operation would be less tedious if you had an importation of better quality water than the Colorado River water. Do you feel that wherever this water might be forthcoming if it should ever become a reality that by the time it actually reached your area that it would be a better quality than the Colorado River water?

MR. HINCKLEY: It couldn't be worse. The reports of the Department of Water Resources and their board of consultants, you recall that is included in the 1955 report referring specifically to the Feather River water - that from the delta it would never exceed 400 parts per million. Well, Colorado River water in the dry years, it has been running almost 800 parts per million, so it would be 50 per cent better water right to start with.

CHAIRMAN MEYERS: We now have Mr. Derby, who is Chairman of the Regional Water Pollution Control Board No. 4, Los Angeles.

MR. RAY L. DERBY: For the purpose of this meeting I am

chairman of the Water Pollution Control Board No. 4. We greatly appreciate this opportunity to appear before your committee.

In a letter dated April 28, 1958, the Los Angeles Regional Water Pollution Control Board filed with the Chairman of your subcommittee ten copies of a statement of Regional Water Pollution Control Board No. 4, Los Angeles region, to the subcommittee on Bay and Water Pollution, of the Assembly Interim Committee on Conservation, Planning and Public Works, dated April 10, 1958. At this time, it is desired to file a copy of this statement with the subcommittee in order that it will appear officially in the record of the hearing.* This statement has been submitted directly to the subcommittee in order to, first, further emphasize some of the recommendations made by this board in the joint statement of the State and Regional Water Pollution Control Boards which Mr. A. M. Rawn has previously submitted to your committee, and, secondly, to submit additional recommendations as well as other pertinent material which is not included in the joint statement.

This statement by this board is divided into the following six sections: (1) Technology of waste disposal and water pollution control, (2) California Water Pollution Control Act, (3) Brief Progress Report on the Activities of the Los Angeles Regional Water Pollution Control Board, (4) Recommendations for Revisions and Clarification of the Water Pollution Control Act, (5) Other Recommendations Relative to Water Pollution Control, and (6) appended documents consisting of pertinent material that may be of interest and assistance to the subcommittee in its deliberations. In order to save time, Mr. Chairman, I do not plan to read the entire statement of this board at this hearing unless it is otherwise desired by the subcommittee. However, if it meets with your approval, I do desire at this hearing to emphasize and read that portion of the statement dealing with the recommendations.

CHAIRMAN MEYERS: Would you please, Mr. Derby?

MR. DERBY: In the Joint Statement of the State and Regional Water Pollution Control Boards which has been submitted to the Subcommittee by the State Water Pollution Control Board, this Board endorsed twelve (12) recommendations for revisions and clarifications of the Water Pollution Control Act. However, this Board desires at this time to emphasize one of its recommendations contained in the Joint Statement, and to submit additional pertinent material relative to this recommendation which was not included in the Joint Statement. The Board desires also to submit an additional recommendation which was not included in the Joint Statement.

1. The following recommendation was endorsed by the Board in the Joint Statement referred to above, and is identified as Recommendation (E) of the Executive Officers' Report:

*Full report available in
Committee Office, Room 3126, -24-
State Capitol, Sacramento,
California

This Recommendation is as follows:

In line with, and to strengthen the concept of regional control, the statutes should be clarified to provide that the State Water Pollution Control Board shall not be deemed an appeal board when a regional board has, in fact, taken action pursuant to the provisions of Articles 1, 2 and 3 of Chapter 4 of Division 7 of the Water Code, but any appeal from such actions of a regional board should be made direct to an appropriate court of law.

The Reason for this is as follows:

Reference is made to a "Decision dated May 2, 1956, of the State Water Pollution Control Board in the Review of the 'Requirements for Disposal of Treated Sewage into the Pacific Ocean at Hyperion by the City of Los Angeles' as adopted on October 13, 1955, by the Los Angeles Regional Water Pollution Control Board in Resolution No. 55-22". In this Decision the State Board found that this Board had failed to take or obtain appropriate action to correct a particular threatened condition of pollution or nuisance, and prescribed waste discharge requirements for the proposed discharge to supersede the requirements contained in Resolution No. 55-22. This action was taken by the State Board in accordance with Section 13025 of the Water Code. The State Board in this Decision directed that the Los Angeles Regional Water Pollution Control Board implement, and administer, and enforce this entire Decision and resume jurisdiction of this matter for future decisions thereon. At the time this Decision was rendered this Board strenuously objected to the State Board on the ground that this Decision was illegal. However, this Board was advised by the Attorney-General that this Decision of May 2, 1956, of the State Board was legal and that it was mandatory upon this Board to carry it out and enforce it. In Section 13025 of the Water Code, no reference is made to "appeal or review". Therefore, it must be concluded that it was not the intent of the Legislature that the State Board would sit either as an appeal board or a review board, but should act only in the event a regional board failed to take or obtain appropriate action to correct any particular existing or threatened condition of pollution and/or nuisance.

It is our opinion that this section limits the authority of the State Board to the powers of correction of a particular existing or threatened condition or pollution and/or nuisance. The language of Section 13025, together with other provisions of Division 7 of the Water Code and omissions from the Act, clearly indicate to us that the intent of the Legislature in creating the regional

boards was that they, and they alone, were to act on matters pertaining to their regions, and that any actions taken by a regional board under Articles 1, 2, and 3 of Chapter 4 of Division 7 of the Water Code were final and prevent the State Board from reviewing or setting aside any of these actions, and those persons objecting to the regional board's findings could appeal directly to the courts for relief. The belief is substantiated by an opinion given to the Honorable Vincent Thomas, Assemblyman, in a letter dated June 18, 1956, by the Legislative Counsel, which in part reads as follows: "...While the State Board must consider a regional board's action to determine what, if any, action the State Board could and should take, it is clear, we believe, that the power to review the validity of the regional board's action for the purpose of approving, disapproving, or modifying the requirements in any way is neither expressly granted to the State Board, nor is it necessary to the exercise of the power expressly vested in that Board..." A copy of this opinion is attached to this Statement as Appendix B. From the intent of the Legislature and the language of the statutes, we cannot conceive that the word "appropriate" in Section 13025 can be interpreted to mean that the State Board has the power or authority to review or set aside any requirements, order or rulings of a regional board. It is the opinion of this Board that under the present policy of the State Board in its administration of Section 13025 the regional boards are seriously handicapped in their administration of the Water Pollution Control Act within their regions. Furthermore, it is the opinion of this Board that it would be possible for a waste discharger to delay for a considerable period of time the corrections of an existing or threatened condition of pollution or nuisance by resorting to appeals to the State Board at one or more stages in the pollution regulation and enforcement procedures. Therefore, in view of the above information this Board strongly urges that the above recommendation be adopted by the Subcommittee in order to strengthen the concept of regional control and to insure better and more adequate operation.

Our second Recommendation is:

that Section 13050(c) of the Water Code be amended to eliminate the salary limitations for Regional Board Executive Officers.

The reason for this:

At present there exists an unbalanced relationship between the Regional Board Executive Officers' salaries, limited by Section 13050(c), and the salaries of the civil service water pollution control engineers who are

supervised by and subordinate to the Executive Officer. For a period of 2-1/2 months in 1957, the Senior Water Pollution Control Engineer received a salary higher than the Regional Board Executive Officers. The salaries of exempt officials, which are set by the Legislature, are not a separate problem, but have a direct relationship to the salaries of civil service employees - this is true because proper salary differentials should be maintained between the Regional Executive Officers and their subordinates. The removal of the statutory salary limitation, as recommended above, will eliminate one of the major difficulties of the State Personnel Board and the Department of Finance in maintaining proper salary differentials between the Regional Executive Officers and their subordinate civil service employees. I might say in regard to that that at the time the Boards first went into activity there was a proper ladder of salary from the executive officer on down. Since that time there have been regular salary increases for the civil service employees but only one 10% increase for the executive officer in the past 8 years. During that period of 8 years there has been some 40% increase in the salaries of the subordinates.

Other Recommendations relative to water pollution control are as follows:

That the Legislature investigate and study water well drilling legislation as it relates to water pollution.

Reason

This Regional Water Pollution Control Board is deeply concerned regarding inorganic pollution which may occur through the interconnection of strata of different quality of underground waters by improperly constructed, abandoned or defective water wells. The Board feels that supervision over water well drilling, in critical areas where pollution is possible, is on a basis comparable to that now exercised over drilling for oil and gas, is needed to afford protection to groundwater quality. At the 1949 Session of the Legislature, the following section was added to the Water Code: "Section 231. The Department of Water Resources either independently or in cooperation with any person or any county, state, federal or other agency, shall investigate and survey conditions of damage to quality of underground waters, which conditions are or may be caused by improperly constructed, abandoned or defective wells through the interconnection of strata or the introduction of surface waters into underground waters. The department shall report to the appropriate regional water pollution control board its recommendations for minimum standards of well

construction in any particular locality in which it deems regulation necessary to protection of quality of underground water, and shall report to the Legislature from time to time, its recommendations for proper sealing of abandoned water wells." With regard to this Section the following is quoted from Page 69 of the Final Report of the Assembly Interim Committee on Conservation, Planning, and Public Works - April, 1953: "...The difficult problems of regulation of well drilling practices must await further technical information before the Legislature can act with assurance on the subject. This study by the Division of Water Resources is intended to supply that information....". Also at the 1949 Session of the Legislature, Chapter 7 on Water Wells was added to Division 4 of the Water Code. With respect to this chapter the following is quoted from page 69 of the Final Report of the Assembly Interim Committee, referred to above: "This is not a law to regulate or control well-drilling practices. These Sections are intended only to begin the systematic accumulation of the data on water wells which will be needed by the regional boards in evaluating disposals of waste into the ground, and which will be of great importance in the studies of the Division of Water Resources. On the basis of information to be accumulated, future Legislatures will be able to act with assurance if it becomes apparent that a regulating law is necessary.". It is the opinion of this Board that during the past eight (8) years since the above statutes have been enacted sufficient information should have been accumulated to enable the Legislature to now act with assurance on this subject. Therefore, in view of the above information, this Regional Water Pollution Control Board reaffirms its previous actions and position on water well drilling legislation as contained in a report titled "Report of Committee on Water Well Drilling Legislation", which report was approved and adopted by the State Water Pollution Control Board on January 4, 1951. A copy of this report is attached to this Statement under Appendix C.

Subsequent to filing of our statement with the subcommittee, this Regional Water Pollution Control Board in a letter dated June 20, 1958, addressed to your chairman, has submitted an additional recommendation for revision of the Water Pollution Control Act. At this time it is desired to file a copy of this letter with the subcommittee, so it will appear officially at the hearing. The letter reads as follows:

"Honorable Charles W. Meyers, Chairman, Subcommittee on Bay and Water Pollution of the Assembly Interim Committee on Conservation, Planning and Public Works, Room 3126, State Capitol, Sacramento 14, California. Re: Suggested Amendments to the Water Pollution Control Act. Dear Sir: This Regional Water

Pollution Control Board at its regular meeting held on June 19, 1958, unanimously adopted the following motion:

'This Board recommends to the Subcommittee on Bay and Water Pollution the following amendments to the Water Pollution Control Act in lieu of Recommendation F and Recommendations 15 and 16 contained on pages 5 and 7 of the 'Joint Statement of the State and Regional Water Pollution Control Boards to the Subcommittee on Bay and Water Pollution of the Assembly Interim Committee on Conservation, Planning and Public Works - April 2, 1958':

1. Amend Section 13060 of the Water Code to read as follows:

'When it appears to a regional board that the discharge of sewage or industrial waste within its region is taking place contrary to any requirements prescribed by the regional board under the provisions of Sections 13053, 13054 and 13055 of the Water Code, the Board shall issue an order to cease and desist, and direct those persons, firms or corporations not complying with said requirements to comply forthwith'.

2. Delete in its entirety Sections 13061, 13061.5 and 13062 of the Water Code.'

"It is the opinion of this Board that the above amendments will materially improve and strengthen the Water Pollution Control Act for the following reasons: (1) will provide immediate and effective enforcement procedure, and (2) will eliminate costly and time-consuming procedure necessitating the regional boards holding expensive formal public hearings in order to obtain enforcement of regional board requirements.

"Pursuant to the direction of this Board, the above recommendation is transmitted to the Subcommittee for its consideration. Respectfully submitted, REGIONAL WATER POLLUTION CONTROL BOARD NO. 4, signed Linne C. Larson, Executive Officer."

At this time if there are any questions by the members of the subcommittee, I will be glad to attempt to answer them and to assist in my answering these questions, I would like to be able to call upon Mr. Linne C. Larson, Executive Officer of our Board, who is here. Thank you, Mr. Chairman.

CHAIRMAN MEYERS: Do any of the members of the committee desire to ask Mr. Derby any questions?

ASSEMBLYMAN DON ALLEN: It isn't so much a question, Ray, as an observation. As a wage administrator you passed over the difference between the salary of your supervisory help and the Civil Service. Isn't that pretty universal throughout the state?

MR. DERBY: That I can't say for sure. I do know that it does institute a rather bad morale problem when the Executive Officer who has all the responsibility for the activities of the staff is getting less than his next in line who has no responsibilities.

ASSEMBLYMAN ALLEN: We find that quite universal throughout city, county and state government. Of course, we should beef, too. We're drawing \$70 less per month today than our counterparts did in 1849. Their take-home pay was \$480. Ours is around \$410. Of course, that's only a hundred and a few years ago. We'll see what the next 200 years will bring us.

ASSEMBLYMAN LOWREY: I'm wondering what the effect would be of changing Section 13060 and No. 2 here. What effect is that going to have on your control over rural wells and well-drilling - directly or indirectly by the Pollution Control Boards? Does that mean that another agency now is going to come out in our rural areas and start telling us how to operate again? Is that going to give you a right to?

MR. DERBY: Is this in the matter of.....

ASSEMBLYMAN LOWREY: Anything. I don't care what it is. If you're going to come out there and say, "Your well isn't drilled correctly - you can't put a well in here", will this give you any of those powers?

MR. DERBY: Are you referring to the statement on well-drilling?

ASSEMBLYMAN LOWREY: Well, will this have any effect upon it? These sections sometimes look innocent; but, when you start to examine them in detail, you find out that they have broad powers. Now is that what happens to these two sections?

MR. DERBY: I'm frank to say I haven't gone as far as consideration of the effect on water-well drilling. This was primarily in the matter of waste discharges into streams or on the ground.

ASSEMBLYMAN LOWREY: But isn't it broad enough that it would include that?

MR. DERBY: It could.

ASSEMBLYMAN LOWREY: So, if you get an executive officer or a chief that decides that he needs to do a little probing in the rural areas, this would give him the power, wouldn't it?

MR. DERBY: The amending of Section 13060, as I see it, if there was any discharge of sewage or industrial waste within a region taken contrary to requirements as have been set, it permits the board to act without the formality of a hearing, which is now necessary.

ASSEMBLYMAN LOWREY: Right. So they just come in and say, "Cease and desist". No hearing, no nothing. Isn't that right? If this were passed.

MR. DERBY: What effect would that have on a water well though? We're trying to keep the water well good. It might have the effect on a discharge if a well is being used for recharge of a water basin. Or in the case of an oil well which might be used for recharge purposes and which was found to be polluting the ground water, but I don't see that it would have any effect on a productive water well. It might be - it wasn't the intent. Of course, I realize that all of these suggestions will probably have to be explored very thoroughly by whoever draws the acts to implement them, so that they will perhaps get the bugs out.

ASSEMBLYMAN LOWREY: Only advise these people that the farmers aren't particularly interested in having governmental agencies come in and enforce their decisions without a hearing, because sometimes the boards and technicians can be in error. It isn't uncommon for them to err just as much as it is the layman.

MR. DERBY: I do, however, think that as far as water wells go that this does have the advantage that there are cases - one came before our board just recently in which there was evidence that the discharge of brine into an abandoned oil well - there was a very strong possibility that it was polluting some water wells. Under the present set-up it so happens that at this time this well is not being used and will not be used for a while; but, if it were being used and were polluting underground, it would be necessary under present law to go into the matter with a hearing. In the meantime, the well could continue to be used. If this amendment

ASSEMBLYMAN LOWREY: Aren't they supposed to be inspected and sealed by the Oil and Gas?

MR. DERBY: That is correct, and the Oil and Gas people said that it was properly sealed as far as they could tell. Of course, you can't always tell what happens underground. But, nevertheless, there was evidence submitted which would indicate that difficulty was had. Now that was an example. Perhaps this wouldn't apply in that case, but it is an example. Under this, a cease and desist order could be gotten out and then later whether that injunction would be made permanent or not would be determined in a proper court hearing.

CHAIRMAN MEYERS: For the information of those present, we have here this morning Mr. Kent DeChambeau of the Legislative Counsel, and Mr. Calof of the Attorney General's Office, so any legal questions we want to have propounded, I am sure that each of the two gentlemen will give us the correct answer.

ASSEMBLYMAN SUMNER: I'm interested in your proposed change

here. Actually, what you would have would be an elimination of your hearing before the regional board and then upon decision by the board itself without the hearing you could issue this order. Now - I don't see that that would necessarily - not being legalistic on it, but how would that have any effect as a temporary restraining order?

MR. DERBY: To add to the other engineers that have been up here, I am an engineer not an attorney.

ASSEMBLYMAN SUMNER: Yes, but you're trying to change the law, so you have chosen the battleground.

MR. DERBY: This recommendation has been made and under the circumstances it has seemed advisable. One of the criticisms that I have heard in the past has been that before a pollution can be stopped it can continue through a rather lengthy hearing and that was the reason this was suggested. Now as to the legal effects of it, I'll have to fall back on my attorney.

ASSEMBLYMAN SUMNER: Well, the present Code provides that the board shall order a hearing on the matter and serve notice thereof by registered mail not less than ten days prior to the hearing on all persons alleged to be creating the condition. So you would set up your hearing, and as I understand it, the present Code also provides that if you can't serve the people, you can serve them by registered mail and then they will make their findings. Now assuming you don't have compliance with the finding of the board, I can't see that there would be any difference between failure to comply under this and a failure to comply under your proposed change. Say you had the amendment as you proposed and a person didn't comply, then you would have to bring them into court on the basis of this order, and you would then go into Section 13063 and have to go through the injunctive proceeding in the same way, but you wouldn't have the advantage of having had a hearing at which time evidence was taken and you heard it pro and con.

MR. DERBY: That is true, and the objective of this, I believe, was to eliminate the time consumed in the hearing. If there is evidence, and frequently, of course, it is very evident, you don't need to take a lot of testimony and have a formal hearing to know in many cases when an order is being violated.

ASSEMBLYMAN SUMNER: Well, but you would also, I assume, have the right to perhaps have a temporary injunction issued by the court if it was a serious matter and do you believe that a court would issue a temporary injunction without having a transcript of a hearing before them to show the gravity of the situation?

MR. DERBY: I don't know.

ASSEMBLYMAN SUMNER: It would seem to me - maybe I'm incorrect in this - I've never observed one of these, but it would seem to

me that the present procedure would allow you more speedy relief if you had a critical situation developing, then your proposed system, plus it would give you the advantage of a hearing. In previous testimony that we've had I've been interested to note that many people have testified that the reason we have alleviation of the pollution condition in many areas is the fact that we've had this cooperation which has resulted from these hearings and from working together and so on, and don't you believe that the hearing might cause the parties to get together and agree to work out a friendly solution?

MR. DERBY: I think at the present time hearings are held, not necessarily formal, whenever requirements are set for a certain discharge, and every opportunity is given all persons concerned to have their say. This is in the case where conditions have been set and then a discharger violates it. The conditions are known and it may be more or less obvious that they are being violated. In the case of a sewage treatment plant, for instance, bypassing its treatment, and discharging raw sewage where the conditions may say no raw sewage is to be discharged in a certain stream or body of water. It'll certainly be very evident without a lengthy hearing if raw sewage is being bypassed from a plant. It would be quite evident on an inspection.

ASSEMBLYMAN SUMNER: Well, there is no provision in the Code for the length of the hearing. That would be pretty much up to the board as to how they wanted to set their hearing.

MR. DERBY: Well, that's true, they would have to send a notice ten days before and they have the hearing and make a decision at that time. If a report came in that raw sewage was being bypassed a board could, as I understand it, act immediately on it without taking the necessary ten days or two weeks

ASSEMBLYMAN SUMNER: Of course, if it was a situation that was really hazardous with raw sewage and so on, wouldn't you have other relief under the Health Code?

MR. DERBY: You might have under the Health Code. On the other hand you might not have necessarily a discharge that would be a health matter. You might have some nature that would be salt brine from a zeolite water treatment plant.

ASSEMBLYMAN SUMNER: Well, then, one final question. You apparently don't feel that the requirement for a hearing with testimony and so you could have a transcript of the evidence which would be the basis for the board's decision - you don't feel that that would be a safeguard for the public and for the state against an arbitrary and capricious act on the part of the board itself?

MR. DERBY: I believe it has advantages, without any question. On the other hand, there are times, and I think the State Fish

and Game people feel that way, too, that there are times when a discharge will occur and efforts should be made to stop immediately without taking the time for a formal hearing. In other words, a discharge might continue for several days until you had your hearing and then could prove by testimony that the discharge was there which everybody knew ten days before.

CHAIRMAN MEYERS: Thank you for being with us, Mr. Derby. We will ask Mr. Dennis O'Leary who is executive officer of the Regional Water Pollution Control Board No. 9 to please come forward.

MR. DENNIS O'LEARY: I am the Executive Officer of the San Diego Regional Water Pollution Control Board. The San Diego Regional Water Pollution Control Board regulates Region 9, which extends from the southerly extremity of the Santa Ana River region to the Mexico-United States boundary. I have prepared a brief statement here and because of the pressure for time on the committee I have excerpted from that statement and I'll read the remarks that I've excerpted.

The San Diego Regional Water Pollution Control Board appreciates the opportunity to be represented at this important Legislative hearing. Because of the crowded agenda, these remarks will be confined to the three major problems confronting the Regional Board: the pollution of San Diego Bay, the International Outfall Sewer in the Tiajuana River valley and the Dana Point-Capistrano Beach situation. It is hoped that the Regional Board's comments on the discharges involved will prove helpful to the Committee. Conversely, the Regional Board will request the assistance of the Committee and the Legislature in assuring a timely solution for one of the problems mentioned.

On October 18, 1957, the State Park Commission closed Doheny Beach State Park. This was done in response to a joint recommendation from the State Department of Public Health and the Orange County Health Department that public contact with the ocean in the vicinity of the park be prevented. Concurrently, the private beach extending westward from the park was posted with warning signs by the County Health Department. These steps were prompted by routine bacterial monitoring and by a special study conducted on September 18, 1957. Underlying the unsatisfactory conditions were the sewage discharges of the Capistrano Beach Sanitary District and the Dana Point Sanitary District.

Four days after the State Park was ordered closed, the voters of the Dana Point Sanitary District approved a \$350,000 bond issue for a new sewage treatment plant by better than five to one. On October 1, 1957, approximately two weeks before the park was closed, the Capistrano Beach Sanitary District had more than doubled its size by annexation, in an attempt to realize a meaningful assessed valuation. Subsequently, in February of this year, the voters of the enlarged Capistrano Beach Sanitary District

gave six to one approval to a \$450,000 sewerage bond issue. Construction is under way at Dana Point and a contract is about to be awarded by Capistrano Beach. The first item of construction planned by Capistrano Beach is a temporary disposal area to permit abandonment of its ocean outfall. This measure will be closely watched by the Regional Board, the Health Departments and the Division of Beaches and Parks, for it may shortly lead to restoration of ocean uses at the Park. Completion of permanent facilities is nine months to a year away.

The regrettable loss of beneficial uses occurred when tangible results of community planning were about to be realized. Admittedly, the action stimulated Capistrano Beach to accelerate its planning. We hope that the temporary expedient to be attempted by Capistrano Beach will permit reopening of the park in a matter of weeks.

Another problem upon which the Regional Board can report definite progress is the pollution of San Diego Bay. On April 8 of this year, the San Diego City Council authorized a \$1,300,000 contract for engineering of a 25 to 30 million dollar sewage disposal system, planned to serve the entire metropolitan San Diego area satisfactorily for the next 40 years. Preliminary criteria call for a 200 million gallon per day system draining a 500 square mile area, with sewage reclamation wherever practicable and practical. Ocean dispersion of surplus treated effluent is being given prime consideration. An outfall or outfalls located somewhere between the Mexican Border and the mouth of the San Diego River would permit termination of the present bay discharge. Engineers are now working on a basic report which will recommend treatment plant and outfall locations. The project is being pressed forward in compliance with the Regional Board's wishes to clean up San Diego Bay and will provide capacity for other unsatisfactory discharges: Coronado, Chula Vista, and the Naval Amphibious Base at Coronado.

Shortly after its inception, in 1950, the Regional Board instructed its staff to investigate sewage disposal practices in the Bay area. The Board was genuinely concerned about what appeared to be a lack of coordinated long-range planning, and, of course, this is one of the directives in the State Water Pollution Control Act. No one else seemed aware of the developing problem. For example, San Diego was about to place a newly expanded 40 million gallon per day sewage treatment plant into operation, and sewage flows were already reaching 37 million gallons per day. In 1951, at the instigation of the Regional Board, the cities in the metropolitan area formed the Metropolitan Sewerage Planning Committee. The Committee retained a board of well-known sanitary engineers to make recommendations on county-wide sewerage problems. At about the same time, the Regional Board undertook the first comprehensive study of municipal and industrial waste discharges into the Bay. The report indicated that the safe assimilative capacity of the Bay for wastes had already been

exceeded and that large areas of the Bay showed high coliform counts, despite San Diego's recent plant expansion. In September 1952, the board of engineers working in behalf of the Metropolitan Sewerage Committee issued its report. Among other things, the engineers recommended removal of all community waste discharges from the Bay and discharge into the ocean through the unified system previously described.

Unfortunately, a \$16,000,000 sewerage bond issue, presented to the voters in June 1954, failed by a narrow margin.

Late in 1955, large portions of the Bay were posted by the State and County Health Departments. The Regional Board directed that San Diego and Coronado undertake appropriate emergency action and suggested that the Naval Amphibious Base do likewise. Emergency chlorination of all three discharges was commenced in June and July of 1956. San Diego alone is spending over \$150,000 a year for chlorine gas and some improvement in the bacterial condition of the Bay has been noted.

In June 1956, San Diego voters approved a charter amendment permitting issuance of revenue bonds for planning, construction, operation and maintenance of sewerage and authorizing the collection of sewer service charges. That same month, a year-long oceanographic study of current and temperature structure off the metropolitan coastline, later characterized as the most extensive of its type to date, was begun.

In July of 1957, its oceanographic study of currents completed, San Diego began preparations to extend its studies into the biological conditions off the metropolitan coastline. I'd like to stress this study, gentlemen, because it touches upon some of the concepts which have already been placed before the committee. Attached hereto is a description of the study, prepared for publication in Outdoor California. It is presented in this fashion so that the Committee may review its interesting details when time is not so limited. Cost of the study for the first year is \$133,000, and this is a continuing study, and three firms of oceanographers have pooled their talents to carry it out. San Diego undertook this task voluntarily, after prompting by representatives of the water pollution control program on the Regional and State levels. The study dovetails with a similar one being carried out for the State Water Pollution Control Board. Certainly, the study is indicative of an enlightened approach by the City of San Diego and due credit should be given to the City.

The basic study portion of the final design of the metropolitan system should be completed by November 1, 1958.

It is clearly evident to the Regional Board that its long-range point of view will permit dischargers involved in the pollution of San Diego Bay to choose a solution of lasting benefit which will be satisfactory into the next century. This is the

objective of the Board.

The third major problem confronting the San Diego Regional Water Pollution Control Board may be solved concurrently with the development of the metropolitan system. However, it is international in its origins and therefore falls into a special category. The International Outfall Sewer discharges over 4.5 million gallons per day into the Pacific Ocean just north of the Mexico-United States Boundary. Over 95% of the sewage flow originates in Tiajuana, Mexico, with the remainder coming from the San Ysidro Sanitation District, a part of the City of San Diego. Treatment facilities at Tiajuana consist of a heavily-overloaded and often neglected septic tank. San Ysidro passes its sewage through a comminution station before discharge into the outfall. In neither case is the sewage satisfactorily treated before discharge. Strong currents in the surf sweep the sewage north to the popular bathing areas at Imperial Beach. Actual quarantine of beaches has been averted only by means of emergency chlorination in the outfall, financed jointly by the City of Tiajuana and the County of San Diego.

Constructed in 1938, under the sponsorship of the International Boundary and Water Commission, the sewer and its contributing facilities became rapidly overloaded. Authorities of the State of California and the County of San Diego complained to the Commission in 1948. On April 4, 1952, Assembly Joint Resolution No. 16 of the California Legislature was adopted to urge the Secretary of State of the United States and the United States Section of the Commission to expedite a solution for the San Ysidro-Tiajuana problem, among others. Later that year, the original San Diego metropolitan system report recommended that Tiajuana become a part of the area-wide plan. Consolidation of the Tiajuana discharge with San Diego Bay discharges is favored by the Regional Board, because of its promise of long-range adequacy and proper operation.

In 1953, the Regional Board and the State and County Health Departments conducted a survey of the effects of the outfall and issued a report stating that the value of the Imperial Beach area had been impaired and its continued use threatened by the discharge. The Governor had just appointed an advisory committee on Tiajuana River problems to the U. S. Section of the Boundary and Water Commission, and the Regional Board petitioned this body to expedite a solution. The following year, upon the advice of the Advisory Committee, the Governor requested the State Department to file a protest with the Mexican Government. The protest lead to an investigation of possible long-range solutions on either side of the border by the United States Section and the Mexican Section of the International Boundary and Water Commission. The study of the United States Section is linked to the San Diego metropolitan system, and that organization is awaiting the basic engineering report now scheduled for release in November 1958. The information will then be passed along to the Mexican Section

for comparison with costs of a strictly local solution for Tiajuana. Just as communities on San Diego Bay will be expected to firm up their planning when the basic engineering report is released, the Regional Board desires Tiajuana to come to a decision on its course of action at that time. Should the strictly local solution be chosen, Tiajuana must proceed at once to provide proper facilities. A decision to participate in the metropolitan system will necessitate several additional years of emergency treatment, adequate to insure against beach closure.

With regard to emergency treatment, the present program was initiated in 1954, in the wake of conversations between the San Diego County Health Officer and officials of Tiajuana. When it appeared that the program would founder in 1958 and that Imperial Beach would be quarantined, Governor Knight requested the Federal Government to assume responsibility for emergency measures, to protect the people of California from a problem arising outside of the United States. Because of the interest demonstrated by the Governor and because of the zeal of local agencies - in self-protection, I might add - the program was re-established without Federal participation. The Governor's communication, however, stimulated Federal interest to the point where the technical advice and assistance of the Department of Health, Education and Welfare were offered for the first time. Within this Department, the United States Public Health Service functions as the Federal public health and water pollution control agency. Because the fullest support of the United States Government is essential in pressing to a solution to this international problem, the Governor accepted the offer. In addition to increasing Federal awareness, a study of the situation at this time by the Department of Health, Education and Welfare will have the advantage of avoiding future delays should Federal financial aid be required in effecting a permanent solution or continuing or augmenting interim programs.

Within a matter of months, Tiajuana must make a firm decision on providing for its treatment needs. Whatever is chosen, whether it be an independent system in Mexico or treatment in the United States, the United States Government must be kept fully aware of its responsibility to expedite the solution. The Regional Board is not loathe even to press for Federal financing of the foreign portion of the problem, should that prove necessary. In any event, the Regional Board feels that a communication from the California Legislature to the Congress of the United States would be most helpful early in 1959. It is respectfully suggested that the Legislature, when it next assembles, memorialize the Congress referring to Assembly Joint Resolution No. 16 of March 31, 1952, pointing out that the Tiajuana-San Ysidro problem remains to be solved, that Tiajuana must choose an alternative at once and that the fullest interest of Congress is essential for a prompt solution. It is conceivable that, by that time, Tiajuana will have chosen to proceed independently. This could be pointed out to the Congress

along with the fact that the people in California are in no frame of mind to tolerate a protracted delay for further consideration of plans, design, financing or construction. Should Federal financing become necessary in the international portion of the problem, the suggested resolution will have alerted the Congress to the demands which may follow. Your cooperation is earnestly and respectfully solicited by the Regional Board in the knowledge that the California Legislature can render invaluable aid in achieving a solution.

To summarize the status of the three major problems facing the San Diego Regional Water Pollution Control Board:

(1) modern sewage treatment plants will be in operation at Dana Point and Capistrano Beach within a year, and emergency disposal facilities at Capistrano Beach may permit reopening of Doheny Beach State Park in a matter of weeks;

(2) final design of a 25 to 30 million dollar metropolitan sewage disposal system, to be in operation in 1962 or 63, is now under way in San Diego;

(3) the International Outfall Sewer problem, in the mind of the Regional Board, will be properly solved by a connection to the projected metropolitan system; the assistance of the California Legislature will help insure as rapid compliance as can be obtained under the circumstances.

ASSEMBLYMAN HEGLAND: I think, Mr. O'Leary, that your group quite properly has emphasized the pollution of the beaches, but looking at the rest of the county, is your problem more complicated - I'm talking now about everything in San Diego County except the beach communities and the communities that immediately touch the ocean. Would your problem be simpler if you had other water besides Colorado River water?

MR. O'LEARY: Yes, it would.

ASSEMBLYMAN HEGLAND: Could you elaborate this?

MR. O'LEARY: We have a number of small underground water basins in the San Diego region - nothing to the extent that occurs here in Region 8, and yet because of our limited water supplies we are coming to realize more and more every day just how important these underground water tables are. The inland discharges of sewage, of course, are going into ephemeral streams which are dry throughout most of the year and then percolating into the ground waters. If we had an imported water supply which was of higher quality than the Colorado River water, of course, the quality of the sewage effluents would be much higher and would therefore have less of an effect on the receiving ground water.

ASSEMBLYMAN HEGLAND: This is a very awkward question, I

know, but has your board made any computation just in the area behind Oceanside of the total financial damage of the very heavy salts which are transported to that area partly through the use of Colorado River water exclusively or almost exclusively?

MR. O'LEARY: The Regional Board, approximately a year ago, received a report on proposed waste discharge from the City of Oceanside which tied in with this particular problem, Mr. Hegland. Oceanside was experiencing considerable deterioration of its water supply because of the overdrawn condition of its principal ground water basin - the Mission Basin. This deterioration was occurring we now know from two sources - and there were contributions made from a third source. Of course, one source was very obviously an underground water table adjacent to the ocean was an influx of salt water. Another source of deterioration was an inflow of connate brine - saline water which had been deposited in the earth many, many years ago and which were now flowing out from the hillsides surrounding the basin because of the overdrawn condition of the basin. The third source of deterioration, of course, was the use and re-use of waters for agricultural purposes upstream. We were asked to set waste discharge requirements for a total reclamation system which the City of Oceanside is constructing to meet the requirements of the Regional Water Pollution Control Board with regard to its discharge into the ocean. Oceanside has an unsatisfactory ocean discharge - they at the same time have a water problem. They decided to reclaim all their sewage for industrial, agricultural and for recharging ground waters. When we got this report on the proposed waste discharge the Regional Board requested, as it is authorized to under the law, and investigation of the basin by the State Department of Water Resources. We have here a very fine report which that department submitted to the Regional Board which discusses many aspects of the condition of the ground water.

CHAIRMAN MEYERS: Mr. O'Leary, are you submitting this as a part of your statement for the record?

MR. O'LEARY: As long as Mr. Hegland has asked the question, yes, sir. It's very difficult to say what damage was done from the financial point of view. (See Exhibit I)

ASSEMBLYMAN HEGLAND: Well, just an observation, Mr. O'Leary, I don't think that the people throughout the state generally realize that the people who live in these regional areas, 8 and 9, that their problems are more complicated because of factors outside the control of people who live in Region 8 and 9 because of the very poor quality of water which is being provided to the people who live in those two areas. That's just an observation.

ASSEMBLYMAN SUMNER: My only observation is that the choice is between poor quality or no water.

CHAIRMAN MEYERS: We appreciate very much receiving the views

of your board, and I was particularly interested in the international situation there, and I have had this matter called to my attention already.

We have one more person to get on here very quickly. Normally we try to follow the scheduled agenda, but this lady cannot be with us tomorrow and she asked if we would afford her the courtesy of just making a three-minute presentation, so I would like at this time to ask Mrs. J. B. Atkisson of the California Federation of Women's Clubs to please come forward.

ASSEMBLYMAN LINDSAY: Mr. Chairman, we have received a communication from the San Diego County Wildlife Federation asking that this communication be placed in our record as part of the record, and I so move.

CHAIRMAN MEYERS: All right, Mr. Lindsay, it will be made a part of the record. (See Exhibit II)

MRS. J. B. ATKISSON: Mr. Chairman, I am the Chairman of Conservation of Natural Resources for the California Federation of Women's Clubs, an organization with a membership of 64,000 women.

We recognize that California waters are vital to our existence. Our economic and social progress, our national safety, as well as the public health and welfare of our people is dependent upon an adequate supply of clean water. California, too, has a vast economic asset represented by the sport and commercial fisheries; in fact, we lead the nation in the production of canned fish.

Today the domestic, fishing, recreational uses and productive industrial capacity of these waters are seriously threatened because of pollution. In the cliff area just east of Portuguese Bend, the White Point sewage malignancy is wiping out hundreds of black abalone. And in Contra Costa County, a smelting plant is discharging a highly acid effluent into the public waters. These are just two of many examples that could be cited. Acres of California waters are now being saturated with domestic and industrial wastes so as to constitute a threat to the continued use of these waters for any purpose other than waste disposal.

The responsibility for the prevention and abatement of pollution of California waters rests with the State of California and local governments, to whom citizens must appeal for enforcement of adequate legislation to protect these waters. Communities or industries have no more right to pollute public waters than a man has to pollute his neighbor's well. All concerned could enjoy the benefits of pure water if pollution were stopped. Unfortunately, this rarely comes about as a voluntary action, and it is for situations such as this that we have government; but that government must be strong enough to adopt adequate legislation and then support that legislation with effectual enforcement.

In 1957, our California Federation of Women's Clubs went on record with the adoption of a resolution approving standards for all coastal areas for the State of California that would make pollution impossible and guarantee to the people of this state that their health and welfare would be protected.

As long as pollution of waters continues, the pollutor cashes in - and the California citizen pays the cost of increased environmental resistance.

CHAIRMAN MEYERS: Thank you for being with us, Mrs. Atkisson, this morning.

We want everybody in attendance who wants to speak, in the event we do not get around to everybody, the committee wants your views, and we ask that you submit them in written form to Mr. Tony Beard, who is the Sergeant-at-Arms, or Mr. Williams or Mr. Wood or the secretary here, so that your views will become an official part of the record.

(Adjournment until 1:30 P.M.)

CHAIRMAN MEYERS: The next person to appear on the agenda is Mr. Harvey Banks, who is the Director of the Department of Water Resources. Since he isn't here yet, we'll hold that in abeyance and take the next in order, Mr. Robert N. Finnie, of the Pacific American Steamship Association.

MR. ROBERT N. FINNIE: I am Assistant to the President of the Pacific American Steamship Association, a trade association representing the principal American-flag dry cargo steamship companies operating on the Pacific Coast.

It is a privilege to appear before you gentlemen today. My purpose is two-fold. First, it provides me with the opportunity of informing you of the great interest the steamship companies have in this field, and what the industry itself is doing in the way of self-policing. Secondly, it provides me the opportunity to keep abreast of the problems and discussions as they relate to pollution of our navigable waters.

As citizens and residents of the State of California, we in the steamship industry feel as anyone else does that every possible effort be made to curtail the pollution of waters from petroleum or from any other source. We believe that the Pacific Coast segment of the American steamship industry has for many years now made an effort over and above that of most industries to curtail pollution. Our efforts have been in the field of education and through disciplinary action by the companies themselves. The booklet entitled "Oil Pollution", a copy of which members of this Committee have been provided with, is an example of our efforts along educational lines. This booklet was a joint

effort of the Pacific American Steamship Association, the Pacific American Tankship Association, the American Merchant Marine Institute, and the American Petroleum Institute. Copies of this booklet are aboard virtually every American-flag ocean-going vessel.

Disciplinary action by the companies themselves against vessel personnel is a sound and effective policy. It is necessary, of course, for obvious reasons. Under the Oil Pollution Act of 1924, (Title 33 USCA, Sec. 431-438) a steamship company whose vessel has caused an oil spill, or in any other way polluted navigable waters of the United States, may be subjected to a fine of from \$500 to \$2500. The Corps of Engineers enforces this law, and they in turn have delegated the Coast Guard and Bureau of Customs with the authority to help them enforce it. These government agencies have a policy requiring the ship operator to clean up the polluted area and bear the cost of the expense. Additionally, if a fine is assessed and not paid promptly, this law permits a lien against the vessel, and the Bureau of Customs can withhold departure clearance until it is paid. So you can see that it becomes a very expensive matter indeed insofar as the companies are concerned, and all precautions are taken to avoid getting into such a predicament. Carelessness of ships officers and personnel is simply not tolerated, and a ship's engineer who is prone to causing fuel oil spills is simply told his services are no longer required.

The Oil Pollution Act of 1924 authorizes the Coast Guard to suspend or revoke the license of any master or officer or the document of any seaman violating the provisions of the Act. In actual practice, there is one exception, and that exception is that the Coast Guard won't act against the license of a civilian who is in the employ of the Federal Government serving on a public vessel unless requested to take action by the federal agency which operates that vessel. The Act itself encompasses only waters that come under the jurisdiction of the United States, which means the three-mile limit. However, under another law, the Coast Guard has the authority to exercise its jurisdiction beyond the three-mile limit. That law is Title 46 USCA, Sec. 239, which provides the Commandant with the authority to establish rules and regulations for, among other things, acts of incompetency or misconduct committed by officers or seamen of merchant vessels. Pursuant to that authority, the Commandant issued Operations Instruction No. 6-56 dated February 8, 1956. Section 5b (6) of these instructions authorize Coast Guard officers to initiate action against the license or document of any United States Merchant Marine personnel in cases where a vessel of the United States discharges oil within 50 miles of the United States coastline.

You can readily see that any American merchant officer or seaman is taking no chances having his license lifted by the Coast Guard. It means his bread and butter. You can see that not only are the companies anxious to avoid pollution, but so are the officers and men who man the ships. It's not a matter

that's taken lightly.

Now I should like to point out that, under the Oil Pollution Act of 1924, any discharge of oil from a ship which resulted from some emergency, unavoidable accident, collision or the like is excusable. Under California law, there are numerous statutes relating to the pollution of the state's water. Under the California Fish and Game Code, Sec. 5650 - I might interrupt here a minute...I am quite sure that's the section - it used to be 481, and I was told that it was changed to 5650 - absolutely prohibits any discharge of petroleum. Under Sec. 133 of the Harbors and Navigation Code, any discharge resulting from emergencies such as unavoidable accidents or collisions are excusable. In actual practice, the California Fish and Game Commission is enforcing Sec. 5650 of the Fish and Game Code in preference to Sec. 133 of the Harbors and Navigation Code. Thus, taking as an actual example, the collision a few years ago involving the steamer "HAWAIIAN RANCHER" and the Norwegian motorship "FERNSTREAM", under the Harbors and Navigation Code, pollution of San Francisco Bay as a result of ruptured fuel tanks would have been excused. Under the Fish and Game Code, it would not have been. As a practical matter, no fines were actually assessed in this case, and I have been advised by the Fish and Game Commission that when evidence discloses that there has been an accidental spill not resulting from gross negligence, but merely from an unavoidable cause, and that an immediate effort has been made to clean up the spill, no fine is imposed. I merely bring up this point to show that, although in practice the Fish and Game Commission handle these cases in a practical manner and that their basis for prosecution is in effect the same as that of the Corps of Engineers in enforcing Federal laws, there nevertheless are two different State statutes applicable to the steamship industry, one containing provisions excusing unavoidable accidents, and one with no such provisions. In passing, I might state the public vessels of the United States are not affected by the provisions of these laws, but are subjected to administrative regulations set forth by the respective government agencies which operate the vessels.

I have mentioned one Federal law and two state laws bearing on this subject and have touched on the delegation of authority to provide proper enforcement. In practice, the Corps of Engineers, Coast Guard and California Fish and Game Commission work hand in hand in enforcing these laws. When one agency becomes aware of a violation, the other two agencies are usually notified, and then it is decided whether to prosecute and whether it will be the Corps of Engineers or the Fish and Game Commission. Regulations set forth by the Corps of Engineers pursuant to their authority under the Oil Pollution Act of 1924 are contained under Title 33 CFR Sec. 209.170(d) through (g). The matter may be, in the discretion of the District Engineer, turned over to the United States Attorney for the District. These regulations state that it is not the policy of the Corps of Engineers to recommend prosecution when the violation is trivial, apparently unpremeditated and results in no material injury.

The District Engineers Office for the San Francisco District informed me that their available records did not disclose any prosecution had been made for years against an American-flag ocean-going vessel. Records of the Coast Guard and Fish and Game Commission also disclose that our self-policing efforts and educational efforts have paid off.

Let me talk about this self-policing a little more. In July of 1952, the Board of Directors of the Pacific American Steamship Association adopted a Resolution which I quote:

"RESOLVED, that each member of the Pacific American Steamship Association will in its vessel operations, avoid the discharge of oil waters within 50 miles of any coast, such Resolution being subject to any necessities resulting from an emergency imperiling life or property, or from unavoidable accident."

Does this language really have any practical effect? Of course it does. I can tell you this from practical experience, having served as a chief engineer with American President Lines, one of the member lines of this Association, and having served also as an assistant engineer with two of our other member lines. This service was between 1953 and 1956, so I am speaking of relatively recent years. The superintendent engineer for American President Lines has issued instructions to all their vessels that the pumping of all ballast must be accomplished before reaching a point 100 miles distant from the United States coast. These instructions are rigidly adhered to by all chief engineers and, after each voyage, log books are turned in for examination and filing. Let's take a moment here and go aboard the American President Lines' vessel which I formerly served aboard, a war-built motorship that operated in the Orient. Homeward bound, on departure from Manila, the vessel was light. Her cargo holds were filled about one-third their capacity and several tanks were now empty. This means that the vessel will pound heavily if she gets in a heavy sea, and so to avoid this, ballast is pumped into the empty tanks and as much is put forward as possible. On this voyage, an amount of salt water ballast was taken aboard which would require about 7 hours to discharge. Since the tanks did contain fuel, the water in due course becomes contaminated throughout with fuel, and the amount of contamination depends of course on the type of fuel and the amount of residue and sludge in the tanks. Upon approaching the U. S. coast, the master requests information as to how long it will take to discharge the ballast, and then at a time appropriate to accomplish this before reaching a point 100 miles from the coast, he orders pumping to commence. The tanks are then stripped of all ballast even before reaching this imaginary line. One pump was sufficient in this case to strip the ballast water from the tanks in 7 hours but, if necessary, two pumps can be used to speed up the operation. The empty tanks now make for a rough ride if any kind of a sea is running, but it is only for a period of 10 or 12 hours, and this period is not injurious to the hull of the vessel or to the cargo if it has been properly secured.

Of course, it is absolutely necessary, and especially on a long trans-Pacific voyage, to take ballast if insufficient cargo is aboard to keep the vessel steady. It is therefore necessary to dispose of it prior to refueling. It has become an internationally accepted rule of thumb that ballast pumped before reaching a point 50 miles from a coastline is a safe distance, and wind and tides will disperse the oil long before reaching the shoreline. The only exception to this general rule, insofar as United States' coastal waters are concerned, is along the coast of Florida where the Gulf Stream passes close to the shores of that state. Insofar as PASSA member line vessels, operating in the coastwise and inter-coastal trades are concerned, I can assure you that whenever it is necessary to pump ballast, these vessels proceed to sea a distance beyond 50 miles before so doing. Again I speak from personal experience, having served in the coastwise trade in 1956.

While a vessel is at sea, the pumping of ballast, by reason of the large volumes of contaminated water, poses the greatest potential source of pollution to coastal waters which wash upon our beaches. And as I have said, we continuously strive to avoid this. However, aside from pumping ballast, there are other functions performed aboard ship which, if not performed properly, could cause pollution. To give you as clear a picture as is possible, and in order that you don't labor under any misapprehensions, I should like to tell you about them. The pumping of bilges is a periodic function that must be carried on at least every 4 hours. The portion of the ship which requires this periodic function is the engine room, but the pumping of the engine room bilges does not mean that what is being pumped is oil. Quite the contrary. During any 4 hour period, it is doubtful that more than a pint of oil of any kind would find its way to the bilges. Pumping is necessitated by reason of normal water leakage from the packing glands of fresh and salt water circulating pumps, from boiler blow-down valves, from the discharge of salt water from the ship's evaporator, condensation drain lines and the like. Manufacturers have installed drain trays at the base of oil pumps which are designed to catch the normal leakage of packing glands on oil pumps. Of course, on occasion there are accidents, but normal marine engineering practice and the dictates of common sense require the engine room bilges to be maintained as oil-free as possible. It is general practice to wash down engine room bilges with a fire hose once a week to keep them clean. In port, of course, engine room bilges are not pumped at all. However, because the normal stay of a commercial ship in port is only a few days at the most, and because of the fact that most of the machinery plant is not in operation, it does not become necessary. Cargo hold bilges are usually pumped once a week. Very little water ever collects in these compartments, and never any oil, unless a fuel tank has been ruptured in some sort of accident. So you can see that the pumping of bilges does not pose the serious threat that some who are misinformed would lead you to believe.

Another function aboard ship which, if not performed with due

caution, could cause pollution is the pumping of sludge tanks. Most cargo vessels have one sludge tank and the usual capacity is 50 gallons. The discharge of residue from oil centrifuges is directed to this tank so as not to contaminate the bilge areas. When crankcases of refrigerating machinery, air compressors, and the like are cleaned, the dirty oil is deposited here. It is only necessary to pump this tank occasionally, and it is always done far at sea.

Last, I believe it is necessary that I touch upon the taking of fuel aboard ship. This, of course, is always done in port. It is a time consuming process, sometimes simple, sometimes tricky, depending upon many factors. Extreme precautions are always taken. The ship's second engineer is responsible for the taking of fuel oil under the supervision of the chief engineer who is required by Coast Guard regulations to remain aboard at all times while fuel is coming on board. The master, chief engineer and second engineer, prior to fueling, examine the vessel's trim tables which enable them to determine what effect the introduction of fuel into certain areas of the ship will have on the vessel's stability and draft. The weight and location of cargo, fuel and water on board, must be considered in order that stability is not endangered or dangerous listing will not occur. Listing of the vessel is an invitation to spill fuel. Having made advance and precise preparations, fueling can commence. As a rule, all intake valves on all tanks to be filled are opened simultaneously and, because of the natural drag of a vessel by the stern, the after tanks commence filling and, when full, (or filled to the desired level and then shut off) the fuel overflows, not on deck, but into the open tank immediately forward, via the open valves for that tank. When the remaining empty tanks are finally being filled, the rate of flow into the ship is reduced and soundings are frequently taken as a double check on the tank pneumerators. Of course, any chief engineer will not order more fuel than he has capacity for and, because of the advance preparations and caution exercised, fuel spills are not really very common. All precautions that can be taken are taken well in advance of fueling to insure that if they do occur, the oil will not go overboard. Thus, all scuppers and drain lines on deck are filled with cement so as to contain the oil on deck if a spill does occur, and overflow lines on the ship's side are fitted with wooden plugs. Sawdust is kept available and the second engineer usually has two seamen to assist him in order that swift action can be taken if necessary. Necessary fire precautions are, of course, taken.

Accidents do occur once in a while. I recall that while serving as second engineer on a vessel during the war, we commenced to take fuel in Oakland. The vessel was brand new, just out of the shipyard. Immediately upon the commencement of pumping the overflow lines on deck began spilling fuel oil. Pumping ceased and a check was made which showed that everything was in apparent good order. Pumping again commenced with the same result. At

the time, the vessel was undergoing a Coast Guard inspection, and two Coast Guard officers were aboard, who joined in an effort to solve the mystery. In due course, it developed that the ship-builder had placed discharge labels on all suction valves and suction labels on all discharge valves. Some oil did spill over the side, but the Coast Guard exonerated us from any liability. A ship service company was immediately called, and within an hour the spill had been cleaned up by the so-called straw and boom method.

Fuel spills are expensive to clean up. In Los Angeles Harbor, on October 30, 1957, a chemical company demonstrated a new product which was designed to dissipate fuel oil and yet not prove injurious to fish or plant life. This demonstration was held in San Pedro and was attended by the Port Warden of Los Angeles, representatives of the Fish and Game Commission, Board of Harbor Commissioners, Coast Guard, Bureau of Customs and steamship company officials. All in attendance at this demonstration were well satisfied with this product and indicated no objection to its introduction into harbor waters. In the event a spill does occur, use of this chemical instead of the less satisfactory time-consuming straw and boom method utilized in the past will enable a better clean up job to be done when a spill does occur.

In addition to the laws I have already cited, there are other Federal and California laws which relate to the subject and which we must adhere to. There is the Refuse Act of 1899 (Title 33 USCA Sec. 407) which prohibits the throwing, depositing or discharging of refuse of any description into the navigable waters of the United States. There are California statutes contained in the Water Code, Health and Safety Code, Agricultural Code and Penal Code. The ones which most directly relate to the steamship industry and which I referred to earlier are Sec. 5650 of the Fish and Game Code and Sec. 133 of the Harbors and Navigation Code. There are local city ordinances covering all the port cities in California which prohibit the discharging of oil and depositing of refuse. I don't feel that it's necessary to cite them here, but suffice it to say that they exist and they must be adhered to. In addition, there is the State Water Pollution Control Board and Regional Water Pollution Control Boards which were created to protect the public against pollution.

Internationally, the Economic and Social Council and the Transport and Communications Commission of the United Nations have for some time done a great deal of work in connection with oil pollution. The extent of their work has greatly increased as a result of the International Conference on Oil Pollution of the Sea which was held in London in 1954 and to which the United States sent a delegation headed by Rear Admiral H. C. Shephard, who was then Commandant of the United States Coast Guard. In his official presentation of the United States' position at this Conference, Admiral Shephard made particular reference to the interest and efforts of the Pacific American Steamship Association and the

Pacific American Tankship Association relating to the matter of oil pollution.

The United States has recently, as a result of Senate action, become a member of an international organization organized by leading maritime nations of the world and known as the Intergovernmental Maritime Consultative Organization, known as IMCO. This group will serve as an international clearing house for, among other things, matters relating to oil pollution. To assist in developing a United States position on international matters of this sort, there exists a United States National Committee for Prevention of Pollution of the Seas by Oil. Vice Admiral A. C. Richmond, who is now the present Commandant of the United States Coast Guard, heads this Committee. The Coast Guard itself maintains what is known as the Merchant Marine Council. An Oil Pollution Panel is an integral part of this Council, and members of this panel include shipping people from the maritime industry. Six of the sixteen members on the panel are executives of member lines of the Pacific American Steamship Association. Their work involves the formulation of proposals to be submitted to the United States National Committee for Prevention and Pollution of the Seas by Oil when it becomes necessary for the United States Government to prepare a formal position on international matters of this sort.

Members of this Committee are undoubtedly aware - perhaps I shouldn't touch on this - I was referring to the Water Pollution Control Act, and I am now convinced that you are aware of the provisions of this Act - it may prove of some assistance in your further studies on this problem in examining this Act. Briefly, it declares that the purpose and intent of Congress is to aid the states in preventing and controlling water pollution. The Surgeon General of the United States administers the law which provides for the preparation and development of comprehensive water pollution programs by the Public Health Service and further provides for cooperation with Federal and state agencies for joint investigations, for the encouragement of interstate cooperation and uniformity of laws. Funds are provided for research, training and the like and for annual grants to states and interstate agencies to assist them in maintaining adequate measures for the prevention and control of water pollution.

In concluding, I should like to state that I have tried to make this as informative as possible, since I feel that there has been considerable misunderstanding of the oil pollution problem as it relates to ocean shipping. You can readily see that there appear to be adequate Federal, state and local laws insofar as this industry is concerned and that as a result of our own deep-rooted interest in this matter and, because of our efforts toward self-policing, the record discloses that grave offenses and flagrant violations do not occur. American-flag shipping is now, and will continue to make every possible effort to curtail pollution and lend assistance to any group seeking it. The Pacific American Steamship Association stands ready to assist this

Committee in any way possible.

Thank you for the courtesy you have extended and the time that has been granted me.

CHAIRMAN MEYERS: Any member of committee desire to ask Mr. Finnie any questions? Mr. Finnie, I'd like to inquire, and you correct me if I'm wrong, but I would conclude from your observations and your review, which is a comprehensive one, that there have been no prosecutions.....

MR. FINNIE: There have been a few, Mr. Meyers. The Coast Guard in San Francisco - their records went back for three years. Beyond that they were not available to me. During that time there were six instances in which the Coast Guard had brought notice to ocean-going vessels - four were foreign-flag and two were American-flag - and of those six there was one fine imposed by the Fish and Game Commission against a foreign-flag vessel. There were no fines by the Fish and Game or by the Corps of Engineers during that period against an American-flag vessel. I'm not so clear on the record down in Los Angeles or Long Beach. I asked the Fish and Game Commission for information relative to that and they were not able to get it to me in time. I was informed by Fish and Game in San Francisco that the record is excellent, although they didn't have any specific figures to show me.

CHAIRMAN MEYERS: Well, Mr. Finnie, when I asked the question, it was an all-encompassing question - including federal, state, and county laws. As you have indicated here, any violation of any of these acts have been at a minimum, but apparently some of your information has been a little limited.

There's one more question in my mind. You touched on it briefly, but I thought it might require a little further elaboration and that is the non-American flagships.....

MR. FINNIE: Well, I can't speak for them, Mr. Chairman. Most of the information that I did obtain was from the Corps of Engineers in San Francisco and the Coast Guard in San Francisco. Recently, within the past two months, there was a Danish vessel which was taking fuel in San Francisco and during my statement here I mentioned wooden plugs inserted into the overflow lines. On that vessel, the pressure behind the lines blew the plugs out, causing about five or ten gallons of fuel to spill in the water. The Fish and Game Commission fined that vessel \$100 - that was the most recent case that I am aware of. There had been two or three others prior to that, going back nearly three years, for which, to my knowledge and as I was informed, there were no fines in that area as such.

CHAIRMAN MEYERS: You were speaking mainly of the San Francisco area.

MR. FINNIE: That's right.

ASSEMBLYMAN DONALD DOYLE: The question that I would ask, when you say San Francisco, are you talking about the Richmond refinery or Oleum in Contra Costa County, or strictly San Francisco?

MR. FINNIE: Well, the whole Bay area, but only as it relates to the steamship industry. I was given no statistics on pollution that may have been incurred by refineries or barges, for instance, or other sources aside from ocean ships.

ASSEMBLYMAN DOYLE: Well, Fish and Game would have that information, would they not, if there had been violations in Contra Costa County? As I recall, we did have.

MR. FINNIE: They would have, yes.

CHAIRMAN MEYERS: That, Mr. Finnie, is the reason why I developed the question that I did, because there have been occasions where such items have been called to the attention of this committee and that is why I mentioned the fact that your information to a degree was limited and that it apparently was confined to the Bay area - that is, your main source of facts.

MR. FINNIE: That's right, and to the steamship industry.

CHAIRMAN MEYERS: Thank you, Mr. Finnie. The next person on the agenda is Mr. Harvey Banks, who is the Director of the Department of Water Resources. I might say that Mr. Banks is going to give the recommendations of the five state agencies to the members of this committee. This came about when we had our meeting in San Francisco. It was the action of this committee requesting the state agencies to come up with recommendations as far as their thinking on the pollution law.

MR. HARVEY O. BANKS: I am Director of the State Department of Water Resources, State of California. By common consent among the five state department directors concerned, notably Agriculture, Fish and Game, Public Health, Natural Resources and Water Resources, I am appearing here to present to you the joint recommendations of those five departments. Three of the other departments are represented here today - Mr. Seth Gordon, Director of Fish and Game, Mr. Joe Carey is here representing Director Jacobson of the Department of Agriculture, Mr. Frank Stead is here representing Dr. Merrill, Director of Public Health. Unfortunately, Director Nelson of Natural Resources could not be present today. I think, Mr. Chairman, you have well stated the background of this and why we appear here to present this statement.

Under date of May 21, 1958, the five directors transmitted to you a copy of our statement and recommendations. I believe that has been given to members of your committee. Now it is a fairly lengthy statement - if it is the desire of the committee

I can brief that down and merely outline our specific recommendations and then attempt to answer questions, or I can go through the entire statement as you may desire.

CHAIRMAN MEYERS: Well, Mr. Banks, as I indicated when Colonel Rawn spoke and Paul Bonderson spoke this morning, I think that this is of sufficient importance that you use whatever judgment you think is best as far as making sure the committee receives all the facts that they should have because your testimony here this afternoon representing five state agencies will be important to the approach in the thinking of this committee.

MR. BANKS: Mr. Chairman, this statement^{1/} is divided into two parts, essentially one is more or less a textual statement of our recommendations and the reasons therefor a discussion of each one of those followed by some specific legislative language which my legal staff has prepared for your consideration in putting these recommendations into, as I say, specific legal recommendations. If the committee desires, it would take me about 40 minutes to go through the text part of this statement, or it would take me 15 minutes to brief it down.

CHAIRMAN MEYERS: Well, then, I guess the best thing to do, Harvey, would be to take the briefing down and then we can ask questions afterward.

MR. BANKS: May I ask that the record show, too, that Mr. Mark Nosler, Senior Attorney for my Department, is present to answer any questions with respect to legal matters contained herein and also Mr. Meyer Kramsky, Principal Hydraulic Engineer in my Department, who is in charge of water quality investigations for the department, is also here for technical information if that is desired.

CHAIRMAN MEYERS: I might say, Mr. Banks, that if you feel that there is other pertinent information which might need a little further elaborating after you have made your presentation or review, I would recommend that you do so.

MR. BANKS: The joint recommendations of the five state departments for legislation are designed to accomplish the following general objectives:

- a. establish and clarify state policy with respect to water pollution control,
- b. delineate more specifically the responsibilities and jurisdictions of state and regional water pollution control boards,
- c. increase the effectiveness of the water pollution control program.

^{1/} Statement referred to is "Recommendations--Water Pollution Control Legislation". Full report available in Committee office, Room 3126, State Capitol, Sacramento, California.

These joint recommendations of the Departments of Agriculture, Fish and Game, Natural Resources, Public Health, and Water Resources are for amendments to Division 7 of the Water Code. The conclusions and recommendations which we present herewith are based upon the experience of the Directors of the five State Departments mentioned as members of the State Water Pollution Control Board in administering the water pollution control program under existing statutes, as well as upon their individual respective responsibilities concerning other aspects of the control, conservation, development, utilization and administration of the water resources of the State. The cases which have been brought before the State Board, the evidence presented in connection therewith and the actions taken, and the many actions which have been taken by the regional boards have all been carefully studied. Thorough consideration has been given to the large body of case law relating to pollution control. Finally, the testimony which has heretofore been presented to the Subcommittee on Bay and Water Pollution has been considered and evaluated.

Now I will attempt to summarize as briefly as possible our recommendations:

Our first recommendation is divided into four parts and deals with legislative policy with respect to water pollution control in this state and the water pollution control program. The five Directors feel that there is not an adequate statement of legislative policy in the present Water Code. Therefore, we recommend:

First, that the Legislature should declare that the people of this State have a primary interest in the control and conservation of the water resources of the state and the prevention of damages to these resources by unreasonable use in order to protect the peace, health, safety and welfare of the people of the state.

Next, we believe the Legislature should declare that because of the widespread demand and need for full utilization of the state's water resources for the several beneficial uses thereof, that it is the policy of the State that the disposal of wastes shall be so regulated as to achieve the highest quality consistent with maximum benefit to the people of the State.

Next, we believe it should be declared that the disposal of wastes to the waters of the State is a privilege, and not a right, and should be so controlled as to promote the peace, health, safety and welfare of the people of the State.

Finally, under policy, we believe that there should be statewide policies to insure adequate quality to meet present and future requirements for all beneficial water uses since quality control is a matter of statewide interest and concern.

Our second set of recommendations has to do with the powers

of the State Water Pollution Control Board and the Regional Water Pollution Control Boards with respect to policy.

First, we believe that the State Water Pollution Control Board should be required to formulate a statewide policy for the control of water pollution within the guidelines of legislative policies as I have mentioned previously.

Secondly, we believe that the Regional Water Pollution Control Boards should be required to adopt regional policies in their respective regions to fit local conditions but within the framework of legislative and state board policies.

Our third recommendation deals with the recognition of broad planning for the development and utilization of the water resources of the state. We recommend that the State and Regional Water Pollution Control Boards should recognize and be guided by the California Water Plan or any other general and coordinated plan of the State for the development, utilization and conservation of the water resources of the State.

Fourth, we believe that it should be provided in the law that the regional boards may incorporate adequate and realistic margins of safety into their waste discharge requirements. And I might explain just a little bit about that particular recommendation. We believe that there are so many unknown factors concerning water quality and the effects of deterioration thereof, particularly with respect to public health, failure of propagation and enhancement of fish and wildlife resources and the other beneficial uses, that we should maintain a realistic and adequate margin of safety in these matters.

Fifth, we recommend that the membership of the regional boards should be increased to include one person associated with both recreation and wildlife.

Six, we recommend that the authority of the State Water Pollution Control Board to review actions of a regional board should be clearly stated. The decision of the State Board in such reviews should be binding on the regional board concerned.

Seventh, we recommend that the Legislature authorize the regional boards to prescribe requirements on both proposed and existing waste discharges regardless of whether or not a condition of pollution or nuisance exists or is immediately threatened.

Eighth, we believe it should be provided that failure to file a report of discharge to a regional board should constitute a misdemeanor and each day's operation without filing of the report should constitute a separate offense. Failure to furnish technical reports should constitute a misdemeanor. The regional boards should be authorized to enforce such requirements in these

aspects by injunctive proceedings.

Ninth, the regional boards should be empowered to take immediate enforcement action in cases of pollution which is transitory or of short duration but periodic in occurrence.

Tenth, the regional boards should be empowered to require submission of technical reports for existing waste discharges whether or not an existing or threatened condition of pollution or nuisance is first shown to exist.

Eleventh, the State Board should be required to publish biennial progress reports relating to the activities of the state and regional boards.

Twelfth, failure to comply with waste discharge requirements should constitute a misdemeanor and each day's violation should be a separate offense. Regional Boards should be authorized to bring injunction proceedings against violators of requirements.

Thirteenth, no waste disposal to state waters should preclude future use of those waters for other purposes, nor should a board, by once prescribing requirements, be precluded thereafter from prescribing higher quality requirements for more sensitive uses. The discharge under requirements should not constitute a vested right to continue under the same requirements. As an explanation of that, there has been an unresolved question as to whether or not a waste discharger could acquire a vested right to the use of the assimilative capacity of the State's waters for waste disposal. We believe that should be clarified and that no vested right to continue a particular waste discharge should ensue.

Fourteen. Regional boards should be authorized to require a discharger to show necessity for a discharge at a specific point and should be authorized to prohibit the discharge if such a necessity is not established. Regional boards should be authorized to specify conditions and locations where no direct discharge of sewage or industrial wastes may be permitted.

And finally, fifteen, regional boards should be clearly authorized to prescribe revised requirements when the character, location or volume of a discharge is changed, and the discharger should be required to file a report of any such change or proposed changes.

That, in summary, constitutes our recommendations, Mr. Chairman and members of the committee, as I say, we have attempted to draft that in specific legislative language which is now before you. We appreciate very much the opportunity of presenting this statement and we will be glad to attempt to answer any questions your committee may desire.

MRS. DAVIS: Mr. Banks, can you give me the definition of

the phrase, "unreasonable use"? I know that's a very difficult question to answer, but as you know, we've been toying with these phrases in the Legislature for quite some time, and we're going to have to pin them down sooner or later and actually, what do we mean, or do we mean that we have to have sufficient leniency there that will eventually and could very well end up in court litigation for clarification purposes. And that's what I'm trying to alleviate, I might say.

CHAIRMAN MEYERS: For your information, Mr. Banks, this question came up this morning and Colonel Rawn was asked the same question, along this line, and so this has been of concern to the members of the committee. In your deliberations did you come up with a definition and discuss it with the various department heads and what were the results?

MR. BANKS: Well, Mr. Chairman and Mrs. Davis, may I consult with my attorney for just a moment because I want to ask him what the definition used by the 1928 Constitutional Amendment which limited the use of water to prohibited unreasonable use or unreasonable methods of use. Now, we may be able to find the answer to that.

Well, Mr. Nosler tells me that in the 1928 Constitutional Amendment which, as I say, prohibits unreasonable use or unreasonable methods of use, the term is not defined in that Amendment. However, the courts in subsequent action have defined that term in various specific cases. I would suggest that as this is a point of issue with the committee, it might be well to have some legal research done on the thing and present to you such definitions as have been adopted by the courts in various cases. For me to attempt to define it here, I can make a shot at it, but I think it would be better to try to have before you the specific language used by the courts in this matter.

MRS. DAVIS: Frankly, Mr. Banks, I'm not a member of this subcommittee, but vitally interested in this phrase because of the stipulation that I stated earlier that this has been bouncing around on other issues, too, in this overall water program, and you say that it has somewhat been defined through court litigation.

MR. BANKS: Yes - in a number of cases

MRS. DAVIS: In specific cases, but did it apply differently to each case or did it somewhat apply the same? Do you happen to know that?

MR. BANKS: Well, of course, Mrs. Davis, as far as definition used in a court's case, that would be a matter depending upon the facts in each case, but I do believe that we can get some indication of the general trend in thinking or at least the range of what constitutes unreasonable versus reasonable use.

MRS. DAVIS: Well, that's my fear. I certainly have all the respect in the world for the legal profession, but I don't want to impose something upon the people that is going to be very lucrative for the attorneys within the state, and I'm trying to, particularly in my district, keep them out of court litigation on this terrific water problem, and we do use these phrases, and I, for one, and I can only speak for one member of the Legislature, but I'm very interested in a clarification of this word.

MR. BANKS: If the committee so desires, we will be very glad to undertake that and make a search of the literature and present you the results of it.

MRS. DAVIS: Well, I personally am very interested if the committee is.

CHAIRMAN MEYERS: We would request that you do this, Mr. Banks. Well, Mr. Banks, in the course of your five-department meetings, has a discussion of "unreasonable" and "reasonable" come about?

MR. BANKS: Yes, I think we can safely say that there was some discussion on whether we wanted to use the term or not, but there is some feeling that the term is too loose - too subject to too liberal a definition and for that reason I don't think that we used it in these recommendations. However, it is now in the definition of pollution in the present Water Code. And it is used very widely in the administration of water resources and water rights in that, as I say, the 1928 Constitutional Amendment prohibits the unreasonable use or the unreasonable methods of use of the water resources of the state. So it is a germane subject...

CHAIRMAN MEYERS: Well, then will you proceed as agreed to....

MR. BANKS: We will be very happy to research that question, and give you the information.

ASSEMBLYMAN LINDSAY: This morning, Mr. Chairman, there was considerable discussion on this use of the injunctive procedure to immediately stop any source of pollution if it was possible. I think one of your main recommendations also is concerned with this, Harvey. You are also recommending that the pollution board have the power to immediately stop through injunctive procedure any pollution occurring.

MR. BANKS: That is correct.

ASSEMBLYMAN LINDSAY: I'm sorry that Bruce Sumner isn't here to bring to your attention some of the points that he made this morning.

MR. BANKS: He's coming in now.

CHAIRMAN MEYERS: Bruce, I think if you'd come up you'd probably have some questions you'd like to ask Mr. Banks in connection with what you had discussed this morning on injunction.

ASSEMBLYMAN LINDSAY: Harvey, I think to bring Mr. Sumner up to date, will you repeat your recommendations in that particular part of your report?

MR. BANKS: Recommendation XII in which our recommendations are that Article II, Chapter 3, Division 7, should be amended to provide that failure to comply with duly prescribed requirements constitute a misdemeanor and that each day's violation constitutes a separate offense and then amend the same Article to authorize the regional boards to bring injunction proceedings against violators of prescribed requirements. I believe that is the one to which you have reference, Mr. Lindsay.

ASSEMBLYMAN LINDSAY: This morning Mr. Sumner raised the question of whether or not this could be done without a hearing. I think there was a little discussion at lunch today that when you obtained an injunction you actually had to have a hearing.

MR. BANKS: Certainly there must be a showing before the court before a temporary restraining order would ensue and before a permanent injunction there would have to be a full hearing. Is that right, Mr. Nosler?

ASSEMBLYMAN SUMNER: Well, the point that I made this morning, though, is that I assume by this, although this is Article II, Chapter 3 in your Recommendation XII that you are referring to the present Article III also. Is that right - changing as it's recommended, Section 13060, which provides for the regional hearings?

MR. BANKS: Excuse me a minute while we get the Water Code.

ASSEMBLYMAN SUMNER: I have a copy of it right here.

MR. BANKS: Assemblyman Sumner, if you'll refer to page 29 of our statement where the specific amendments to 13060 are discussed, as shown on page 29 of our formal statement. Our amended language would read: "When it appears to a regional board that the discharge of sewage or industrial waste within its region is taking place contrary to any requirements prescribed by the regional board under the provisions of Sections 13053, 13054, 13054.1 (which we recommend be added) and 13055, the board may order a hearing on the matter and shall serve notice thereof by registered mail not less than ten days prior to the hearing on all persons alleged to be creating the conditions." We have in our recommended amendments here made it permissive to hold a hearing rather than mandatory.

ASSEMBLYMAN SUMNER: May I see my copy of the Code there?

Well, my point that I made this morning, I don't know if you were here, Mr. Banks, at that time, but my question on it was that, if you didn't require the hearing, first of all, the people wouldn't have the opportunity to or the reviewing court wouldn't have the opportunity to review the action of the board and see the evidence upon which they based their ruling. I agree that according to your Section 13063, it does say that other evidence can be presented, and the court might go through it, but I think you could make a case of the position that this would require them to go through it first of all in a summary action and then they go into the court action.

MR. BANKS: Well, certainly proper administrative procedure should be followed. However, it is our belief that there should be a little faster means of stopping violations than is now provided in the present Code. That's our basic recommendation in what we have placed before you.

ASSEMBLYMAN SUMNER: Well, wouldn't there have to be some type of a hearing at which you made your first determination?

MR. BANKS: May I call to your attention, Mr. Sumner, on page 28 of our formal statement, under Section 22 in the center of the page, our proposed new section 13054.8.

ASSEMBLYMAN SUMNER: That refers to 13053. Well, to hasten it a bit, we also asked the question this morning as to whether or not there isn't some advantage to be gained in requiring a hearing in that you have the persons who are more or less being adjudicated against opportunity to present their testimony before the board and to have a transcript made and so on, the result of this hearing with a ten-day notice all of which can be accomplished within a relatively short period of time.

MR. BANKS: Well, I would certainly agree, Mr. Sumner, with the thought that you expressed this morning that much has been gained in this State by approaching this on a cooperative basis, and certainly I think that personally - I can't in this case speak for the other four directors - but personally I would agree that the possibilities of obtaining action through negotiation and cooperation should be exploited to the fullest. Nonetheless, I think there comes a time in some of this where that has to end and there has to be action taken to stop violations of requirements if we are going to actually achieve pollution control, and it is to that end that we have made these recommendations.

ASSEMBLYMAN SUMNER: Well, have you had a history of the other system not working? In other words, have you had a hearing and found that it doesn't work?

MR. BANKS: I think if you'll examine the history of pollution control in some other states you will find that, for instance, in the Raritan River where they have been litigating this thing for

almost 40 years and pollution is still occurring. May I point out that it is the feeling of the five state departments concerned here that we believe that in pollution control, emphasis should be placed upon prevention rather than solely upon abatement. However, we also recognize that there comes a time when abatement is necessary.

ASSEMBLYMAN SUMNER: Well, that's what we're discussing is abatement and getting back to California, have we had any history of this present system not working?

MR. BANKS: No, I don't believe that we have. However, our recommendations, Mr. Sumner, are based upon about some eight years' opportunity here to analyze the present law and to see where the weaknesses may come in should the occasion arise to order abatement.

ASSEMBLYMAN SUMNER: Well, but if you've never tried it and you've never had any difficulty with it, why should we change it?

MR. BANKS: Well, we believe that as time goes on and as the assimilative capacity of the state's waters to receive wastes is more fully utilized, that we may run into some of these problems which we have not as yet. To date I would say that the waters of this state, with a few exceptions, are still in pretty good condition. On the other hand, our population is growing, the cities are expanding, industrialization is taking place at a very rapid rate, agriculture is expanding very rapidly, and while it may or may not be defined as a waste, nonetheless the return flow from agricultural operations does tend to deteriorate the quality of the waters. We feel that the time is not too far distant where we're going to be faced with rather critical problems of pollution control which have not as yet become quite so critical to this time, and we are looking in much of this, not so much to any weaknesses that have developed out of actual cases in the past, but to what we feel very definitely may become a critical problem in the not too distant future.

ASSEMBLYMAN SUMNER: Well, the thing I can visualize, Mr. Banks, for example, and I'm sure in knowing many members of the present boards and so on that this wouldn't happen with the present people involved, but suppose you get a board that wanted to take an arbitrary action and they decided, all right, we'll put out an order to cease and desist. There's no evidence, there's no transcript, there's no hearing held. The person against whom you make the order does not cease and desist and therefore it's brought into the District Attorney's office for your injunctive procedures, then brought before the trial judge. The trial judge sits there, he has no transcript, he has no evidence, he has no recommendations or basis for the recommendation of the board other than the board's findings, but he doesn't have the actual evidence that was presented to the board. As I understand it, if you don't have a hearing and that's what this would allow you to do. It

would seem to me that if you're worried about a prolonged legal battle you would be more likely to get it there than you would if the trial judge in the court that is attempting to enforce this law could be convinced that before the hearing board or in the hearing before the board, there was a good opportunity for both sides to present all the evidence, that the men who were on the board are supposedly experts in the field or at least experienced in the field and they made their decisions and that this decision therefore should be given a great deal of treatment. Also, you could have the person against whom you made the order come in and I believe in many cases successfully contend that he didn't have an opportunity to be heard before the original board, and unless you had the provision for a hearing in the Code, again the judge would more or less instead of being in a reviewing capacity and just taking new evidence, it would seem to me he would be practically a trial de novo, you might say.

MR. BANKS: May I suggest that possibly some of the other departmental representatives might wish to speak on this point, because it is an important point.

ASSEMBLYMAN SUMNER: I would be very interested. I'm not necessarily convinced one way or the other, but it appears to me that this might be better.

MR. FRANK STEAD: I am Chief of the Division of Environmental Sanitation of the State Department of Public Health. The change which the five departments are proposing is that regulations and law enforcement should be by previously agreed upon requirements and not by assessment of a general overall situation at the time of a failure. In your San Francisco hearing your committee stressed the importance in such areas as San Francisco Bay where there are many dischargers into the same receiving body of water that the only orderly way one can proceed is to have effluent requirements for each individual discharger and not hold them all individually responsible for the end result in the San Francisco Bay itself.

Now one of our major proposals is that the program should incorporate a reasonable or sizeable factor of safety. Let us say, now, we're speaking of a section of the south end of San Francisco Bay into which six or more municipalities or industries are discharging and that the requirements that have been set have assessed the total impact of all of these discharges and then incorporated a factor of safety. I think it's very obvious to you that one of the smaller of those dischargers might fall off markedly in his agreed upon quality of effluent, and merely take advantage of this factor of safety. If one then had to wait until the collective succession of failures produced a situation in the Bay which would be unsatisfactory, it is conceivable that some of the dischargers might take advantage of the situation for quite a period of time. Under present law, it is no violation of law to violate a requirement. That merely initiates an evaluation

of the result - it is merely a trigger, it is not a binding law. The Departments are proposing that the requirement itself be the law for that discharger.

Now to your point, sir, the time for the hearing on this requirement comes at the time of the setting of that requirement, and we firmly believe that there should be adequate hearings and in some cases they would be rather elaborate and extended, but hearings to satisfy the discharger that he has had his day in court and had a fair trial. If the conditions change, then it would seem reasonable that the discharger would ask for a review of the requirements, if they are no longer appropriate. But on the day of violation it is our feeling that the law for the discharger should be his requirement reached in this democratic and administrative manner, and not the generalized condition of the receiving body of water which reflects the acts of many, many dischargers. It seems to us this would be fair to the public and fair to discharger to give him responsibility for something over which he has complete control.

ASSEMBLYMAN SUMNER: Well, don't you feel, however, that on the question of whether or not the discharge is in excess of the requirement that there you should have a hearing.

MR. STEAD: The administrative process there is only to answer a factual question - was the requirement violated? And insofar as that calls for a hearing, assuredly, yes, but not a judicial evaluation of the whole set of ten requirements at the time of an alleged violation. This is the point I wished to bring up.

ASSEMBLYMAN SUMNER: Just one further question on that, Mr. Stead. Don't you feel, and maybe I'm wrong, I've never watched one of these things go through at the hearing stage, but that that could be the board's requirement at the time of the hearing; in other words, that all evidence be restricted to the factual question of whether or not there is a violation? And you would at least have a hearing on that part of it.

MR. STEAD: That is correct, but there must be agreement on what is violating the law. At the present time a requirement may be violated and the law is not violated, merely the second stage of law is implemented and the real judicial and administrative hearing, the real pertinent facts of the case are then assessed at this day of excitement and alleged violation rather than in advance and under a situation of more objectivity.

ASSEMBLYMAN SUMNER: I see your point.

ASSEMBLYMAN LINDSAY: I do think we ought to thank all the heads of these departments, though, for the tremendous effort that went into this very long report that they have prepared for our committee.

CHAIRMAN MEYERS: Mr. Banks, I have one question here. I've noticed today with great interest the recommendations of the state and regional boards and, too, the recommendations which were just presented by you on behalf of the five department heads and there seems to be an obvious philosophy difference involved in these two sets of recommendations. Would you please explain or develop for this committee the basis for the recommendations concerning both the high water quality and the water disposal as a privilege and also why this is preferable to the present Act. We've touched on this already, but I'd like to have it explained a little further.

MR. BANKS: Well, speaking to your second point first, Mr. Meyers, as I say, we believe that in light of the history of pollution problems in the United States, and as I say, California so far is fairly fortunate as compared to the other states, the history shows pretty conclusively that if we are to protect and maintain the qualities of the waters of a state or an area at levels which will permit their full utilization that the emphasis must be upon prevention so long as it is done within the concept of maximum total benefit. With respect to the matter of waste disposal being considered a privilege and not a right, the problems of development, conservation and utilization of the waters of the state are a continually changing matter and what we plan for today, or as the future develops, the actual currents may be somewhat different; therefore we cannot adopt, I believe, the view that what we set today must necessarily hold for all time because the demands on our water resources may be somewhat greater as time goes on, as our population increases and our economy expands. Furthermore, with respect to this question, the waste assimilative capacity, if we are not to completely degrade our waters, deteriorate them, the waste assimilative capacity of any particular water resource is limited. Were we to allow the concept to develop and be implemented that he who is first in time with respect to the utilization of that water resources is first in right to the utilization of that for waste disposal. I think that it is not at all unreasonable to postulate that we may reach a point where further economic and industrial development will be greatly inhibited simply because there will be no place or no way for future industries to dispose of their wastes, or cities or what you will - any waste discharger - I do not mean to imply that industries are the only problem in this case. The same is true of municipal organizations. In other words, you might well reach the full assimilative capacity of a particular stream by say six discharges under given conditions. Unless you could upgrade those discharges when the seventh discharger wanted to take his place in the use of that stream for the disposal of his products - there would be no way for the seventh to move in, and we can see some very severe economic problems forthcoming here unless we do adopt the philosophy and the concept that waste disposal is a privilege and not a right and subject to regulation, upgrading if the need arises in order to permit others to use those water resources for the disposal of their waste, too.

CHAIRMAN MEYERS: On behalf of the committee, and as

Assemblyman Lindsay has already indicated, we appreciate the fact that these five state agencies involved after considerable effort and deliberation and compromising have arrived at agreement as far as they are concerned in making recommendations to this committee for the changes of the Pollution Act.

MR. BANKS: Well, thank you very, very much, Mr. Chairman and members of the committee. On behalf of the five state department directors, may I assure you that it has been a privilege and an honor to be asked to appear before you and present these recommendations. Thank you very much.

CHAIRMAN MEYERS: The next witness on the agenda is Mr. Rod Antrim, who will speak for the California Manufacturers' Association.

MR. ROD T. ANTRIM: I am appearing today on behalf of the statewide industrial community as represented by the California Conference of Industrial Associations, the California Council on Air and Water Waste Control, and the California Manufacturers' Association.

Industry is proud of its record of progress in controlling water pollution. It fully recognizes that good quality water is California's most precious natural resource. It is pledged to the preservation of the quality of that all important resource.

In previous meetings, this Committee has heard a few broad statements implying that industry is indifferent to the need for control; that it is the major contributor to water pollution and has done little to correct adverse conditions. This is not true. Mr. Bonderson, Mr. Harrison, Mr. Gorlinski and others have commended industry on its cooperation in an effort to effectively control pollution. I am sure that you will find that almost without exception where the enforcement agencies have requested industrial cooperation, it has been willingly and efficiently given.

Some exceptions have been expressed by the Department of Fish and Game and certain individuals speaking on behalf of the so-called organized sportsmen who, quite naturally, subscribe to the Department's philosophy that "...bodies of water, particularly inland waters, should not be set aside for the disposal of wastes as such." The Department's position on this is quite clearly presented on page 107 of the September 25th hearings and on pages 129-130 and 131 of the transcript of proceedings of the Committee's hearings on November 4 and 5, 1957, in San Francisco. These advocates of unlimited recreation and sports opportunities also criticize the inclusion in the present State Law of economic considerations as an element of determining proper requirements. These views are not necessarily in the interest of the general welfare of all of the people. They are, we submit, idealistic and unrealistic.

In the following discussion, it is intended to present industry's position from a broad and objective point of view.

1. Present Condition of California's Water

The quality of California waters (both stream and bay) are superior to those in most, if not all, other states of comparable population density. They should be kept that way. In general, they have been improved, rather than impaired during the past ten years, despite California's tremendous population increase and unprecedented industrial development. This is the result of careful planning and cooperative action. It is not just happenstance.

2. Prospective Future Condition of California's Water

The great majority of our industrialists and the men and women who find their jobs in industry are sportsmen in the true sense of the word. They are all interested in developing and maintaining the recreational values of California as well as maintaining the quality of California's water. This can best and most certainly be accomplished by cooperative action.

In recent years, the organizations which I represent here today, have been carrying on a program of encouraging their member companies to analyze their own waste disposal practices and facilities and to take voluntary steps to improve them. Many changes have been made without fanfare and many millions have been spent in voluntary improvement without publicity.

There are many improvements yet to be made but these are more difficult ones for which there is no easy answer and requiring extensive study, preparation of plans and costly construction.

Mr. Bonderson, in testifying before this Committee on September 25, 1957, said, "In no instance that I know of, has a significant new pollution problem been created by a separate and independent industrial waste discharge in the last seven years."

3. Progress in Controlling Industrial Wastes

During previous hearings you have heard testimony of representatives of the State and certain Regional Boards indicating that about 300 million dollars has been invested, largely in municipal facilities, during the past seven and one-half years. What has not been made clear is that industry has invested about 250 million dollars of its own money in that same period for new and improved facilities. Needless to say, in addition to this 250 million dollar expenditure, industry will also pay a substantial portion of the 300 million dollars that has been invested in municipal facilities. Furthermore, industry expends annually in excess of 30 million dollars in maintaining and operating their waste treatment facilities. The survey conducted by the Industrial

Coordinating Committee, also established some other pertinent data. Of the companies surveyed, 44.6% had made capital improvements in waste treatment facilities. The types of treatment facilities, by percentage, ranged as follows:

(a)	Ponding for settling, evaporation, dilution neutralization and re-use	37%
(b)	Collection, extension and drainage lines	30%
(c)	Separator and skimming equipment	20%
(d)	Acid and P.H. control equipment	13%
		<hr/> 100%

The average cost of waste disposal facilities for all installations reported was \$38,504.00.

Of companies surveyed, 13.8% have plans for future capital improvements to be made by 1960.

36.9% of the companies surveyed have made changes in their method of disposal since 1950. One manufacturer alone has expended in excess of \$1,000,000. The average cost of the change was \$93,756.00.

The annual costs of operating waste disposal facilities stated in percentage as to annual costs, ranged as follows:

No Cost	6.9%
Under \$1,000	24.2
\$1,000 to \$4,999	24.1
\$5,000 to \$9,999	10.3
\$10,000 to \$49,999	13.8
Over \$50,000	6.9
Not Stated	13.9

Average cost of operating these facilities was \$8,987.00.

46.2% of the companies surveyed have had waste discharge requirements fixed by a public agency. The balance either discharge into a municipal or public system whose discharge requirements are fixed at the point of final discharge, or because of many years of operation without causing pollution, have not been asked to meet specific requirements.

In about 77% of the cases studied the company has been able to meet requirements of the public agencies without serious difficulties. In about 23%, difficulty has been encountered, requiring major changes in method of handling wastes, costly installations requiring special design, lack of available dump sites, or because of overloading of municipal sewage systems.

Industries covered in the survey include automobile, steel and metal products, rubber, glass, chemical, paper and pulp, food

processing, oil, sugar and lumber.

4. Important Economic Factors

In previous hearings, emphasis has been placed on the economic importance of recreation. To this we readily subscribe; industrial management, as is well known, is equally interested in preserving the maximum of recreational opportunities consistent with the general welfare.

A prerequisite of our ability to have and enjoy these benefits is a healthy, competitive business climate.

Basic wealth is created only by the exploitation of our natural resources, not by printing money. One of these natural resources which must be nurtured and preserved, is our fisheries. Based on figures given by the State Department of Fish and Game, these fisheries, together with other wild life resources, and the commercial, recreational and sports activities related thereto, represent an annual economic value to the State in excess of one-half billion dollars. Impressive as these figures are, they nevertheless represent but a small portion of the State's economy.

Of the total personal income received by Californians during the past year, almost twenty-four and one-quarter billion dollars was received in salaries and wages. Almost seven billion of this twenty-four billion plus was paid to employees in manufacturing -- approximately 28% of the total salary and wages paid during the year 1957 to all Californians.

In contrast to the one-half billion dollar value of sports and recreational activities in the State, the value added through the manufacturing operations alone in 1957 exceeded twelve and one-quarter billion dollars.

Our economy must be pushed to much higher levels if we are to provide full employment for our ever-increasing population. As Members of the Legislature, you know far better than we the problems which will confront you during the 1959 Session in your efforts to balance the budget, with income from present revenue measures falling almost \$250 million short of meeting the State's spending program. And Gentlemen, we submit that expanding manufacture and processing of our resources is the only means by which added jobs can be created, and our tax base adequately expanded.

5. California's Competitive Position

California's per capita state and local tax load is today higher than that of any other industrial state with the possible exception of New York. Manufacturers throughout California are becoming more and more concerned with the constantly rising costs of doing business and the fact that the State's

competitive position with other sections of the country is becoming less and less attractive. There are numerous instances of company expansion programs in which, after a thorough study of California's business climate, the manufacturers have elected to locate their new plants outside of this state even though their first thought was to settle here.

6. Summary of Industry's Position:

(1) In looking upon the water pollution problem objectively, based on the foregoing facts and in light of all of the circumstances,

Industry:

(a) Favors the maximum conservation of the State's natural resources.

(b) Favors a sound water pollution control act. It recognizes its responsibility to the common welfare and seeks no privilege of polluting the land or waters of the State in any way that would adversely affect any greater beneficial use.

(c) Believes that the quality of the waters of the State must be preserved, and, when it is in the interest of the public welfare and reasonable, it should be improved.

(d) Contends that one of the beneficial uses of land and water is that of disposal of domestic and industrial wastes. It insists that such wastes must be properly treated before discharge, if such treatment is necessary to protect the public health or the fish and wildlife.

(e) Believes that improvement of the State's waters and control of pollution can be best accomplished through cooperative action. Such cooperative action is provided for in the present Water Pollution Control Act, under which the greatest progress in the history of the State has been made toward controlling water pollution.

(f) Favors the continuation of the present State Water Pollution Control Act. It is not opposed to clarification of the law, nor to amendments that will improve its efficiency without destroying its philosophy.

(g) In support of (f) above, it has become evident during the course of these hearings, that it is not clear as to the proper interpretation of that provision of the law which provides that chronic cases of pollution must be referred by the Department of Fish and Game to the appropriate Regional Water Pollution Control Board for correction.

It was never industry's interpretation that this section of the Act in any way deprived the Department of Fish and Game of its authority to make arrests and prosecute any violator whose discharge was injuring fish life. In fact, we contend that under the present law the Department could arrest and prosecute such a violator day after day and treat each day as a separate violation until the discharge was corrected.

We also recommend that the law be amended to speed up enforcement procedures whenever there is evidence of a violation of a

Regional Board's requirements. This, we think, would be best accomplished by adopting the following amendment:

Section 13160 shall be amended to read as follows:

"When it appears to a regional board that the discharge of sewage or industrial waste within its region is taking place contrary to any requirements prescribed by the regional board under the provisions of Sections 13053, 13054 and 13055, the Board shall issue an order to cease and desist and direct those persons, firms or corporations not complying with said requirements, to comply forthwith."

and then

Delete in its entirety Sections 13061, 13061.5 and 13062.

Failure to comply with such order would immediately place the matter in the courts.

From the evidence submitted before this Committee to date, it is apparent that real progress has been made in controlling the pollution of California's waters. It is also evident that still further improvement can and should be made. Such improvement can best be accomplished under a program that encourages cooperative action under a sound and constructive program. This is the American way; it is the California way; let's keep it that way.

In conclusion, let me say on behalf of my principals, that we feel this committee is performing a very useful service to the State. No law or plan is perfect, and a periodic analysis of its operation by an objective and unbiased group is most constructive. It is our desire to continue to work with the committee, and we pledge our wholehearted cooperation.

I thank you very much for your courtesy and indulgence.

ASSEMBLYMAN DONALD DOYLE: Mr. Chairman, I don't have a question, but Mr. Antrim mentioned on page 5 the industries concerned - steel, metal products, rubber, glass, chemical, paper pulp, food processing, oil and sugar. I don't know whether he's referring to Contra Costa County or not but they're all in my county. As you can see, we've got four refineries. We've got C & H Sugar, and U. S. Steel and others up there, and I agree wholeheartedly with the remarks made here by Mr. Antrim. I can see that they went into great detail to bring out some of the facts. However, I hasten to tell Mr. Antrim that prior to last year he had an ally in his fight, and that was the commercial fishermen. But they're no longer in the San Joaquin and Sacramento Rivers and they no longer can take part of the blame; all the blame will be put on the industries in that area. I know we're going to have other witnesses, Mr. Antrim, perhaps from

an engineering standpoint that will bring some of these facts out, and I will wait until that witness comes along to ask them very pointed questions of bringing out some of the things that have been said before about how wrong the industry has been. The courts and the cases that I've known of haven't been proven that way. Mr. Chairman, that's the only comment I had to make.

ASSEMBLYMAN SUMNER: Apparently I'm the only one that's concerned about this hearing that is required to be held under present law. Why did you decide that the hearing should be abolished prior to the court action?

MR. ANTRIM: To the best of my understanding, there has already been a hearing and the machinery has been set up.

ASSEMBLYMAN SUMNER: In other words, you would agree with Mr. Stead here that the preliminary hearing setting the initial....

MR. ANTRIM: Yes.

ASSEMBLYMAN SUMNER: Well, we have unanimity on one thing, then, at least among the witnesses.

(Recess)

CHAIRMAN MEYERS: The next witness to appear on this afternoon's agenda is Mr. Hubert C. Ferry, who is with the Western Oil and Gas Association.

MR. HUBERT C. FERRY: I am appearing before your committee today on behalf of Western Oil and Gas Association.

By way of personal introduction, during my affiliation with Union Oil Company of California and since 1925 I participated in numerous waste disposal projects, including the organization and management, and as a director and officer, of several waste disposal companies serving oil fields throughout the State; assisted in resolving the Water Pollution Control Act during the 1949 California Legislative Session and was chairman of the Waste Disposal Committee of Western Oil and Gas Association for a number of years.

Western Oil and Gas Association is comprised of 146 members, including all of the major and most of the independent operators in California.

The Waste Disposal Committee of 15 members is one of a number of the Association's committees, and its particular function is the coordination of all waste disposal activities within the petroleum industry and with governmental agencies on the city, county, state and federal levels.

PETROLEUM INDUSTRY:

The petroleum industry itself embraces a vast operation of drilling, production, transportation, storage, refining and marketing.

Its contribution to the economy of the State is revealed by a glance at the following statistics:

Capital Investment	\$5,727,700,000
Annual Taxes Paid or Collected	376,285,000
Annual Wages and Salaries	663,218,000

While the disposal of wastes is a relatively minor segment of this vast operation, relating almost entirely to oil fields and refineries, nevertheless it assumes substantial stature in light of the preservation of our diminishing water supplies.

My participation in today's presentation will be confined to the disposal of wastes from oil field operations. Mr. John H. Easthagen, who follows me, will discuss the disposal of wastes from refineries.

OIL FIELD WASTE WATER:

At present there are, in round figures, 37,000 active oil wells and 384 active gas wells in 242 fields throughout the State. These wells produce, every day of the year, approximately 900,000 barrels of oil and 1,400,000,000 cubic feet of gas, along with 2,000,000 barrels of waste water. It is this waste water which I am discussing.

Historically, when an oil well is completed, it usually produces very little, if any, water with the oil. After a number of years, as water encroaches and increases, a well may produce as much as 15 or 20 barrels of water with each barrel of oil. When the lifting cost of the total fluid becomes uneconomical, the well is abandoned.

CHARACTER AND TREATMENT OF OIL FIELD WASTE WATER:

Before disposal, the waste water must be collected, cleaned and treated to meet the requirements of the governmental agencies concerned. Oil field waste water normally contains sediment, salt and oil. Occasionally we find a small amount of hydrogen sulfide. The waste water, having been imprisoned with the oil for millions of years far beneath the earth's surface, is, in some instances, depleted of oxygen, and in such instances complicates the treatment. Some drilling muds as well as corrosion inhibitors may contain chemicals which must be taken into consideration in treating the waste water.

All of the above-mentioned factors, together with the great variance in salt content (from less than 200 to more than 30,000 parts per million) and in the viscosity and character of oil (from 9° to 35° gravity) requires a substantial variance of treatment in different oil fields. However, treatment is normally accomplished by ponding, aeration, chemicals, clarifiers and filters, or a combination of these.

It may also be of passing interest to note that iodine is the only chemical of commercial value which is found in oil field waste water, and is present only in the Dominguez, Signal Hill and Playa Del Rey Oil Fields.

Generally speaking, the 2,000,000 barrels per day of waste water from oil fields is disposed of by four methods, and in substantially the following amounts:

	<u>Bbls. per Day</u>
1. Discharge into the ocean or at tidal prisms....	500,000
2. Injection by means of wells into subsurface formations.....	350,000
3. Evaporation and seepage from surface basins into subsurface formations below the fresh water aquifer.....	550,000
4. Available for agricultural purposes.....	600,000

Most of the waste water from the coastal oil fields located in Orange, Los Angeles, Ventura and Santa Barbara Counties is discharged into the ocean or tidal prisms through pipelines owned by oil operators, or into sewers which in turn discharge into the ocean. There are some injection programs in these counties for disposal purposes and also in conjunction with the secondary recovery of oil.

In the San Joaquin Valley Oil Fields, which are remote from the ocean, waste water is disposed of by injection, seepage and evaporation, and used for agricultural purposes.

No accurate determination has been made of the amount of water dissipated into the atmosphere by evaporation. However, the disposal of a substantial portion of the 550,000 barrels ponded daily in basins, most of which is in the San Joaquin Valley, may be accounted for by evaporation. This is supported by a petroleum industry study of Weather Bureau records over a long period of years, which indicates in the San Joaquin Valley an average annual evaporation of 60 inches, accompanied by an average annual rainfall of only 5 inches.

Some of our good friends, engaged in government and who persist in calling oil field waste water "brine", may be quite

surprised to learn that approximately 600,000 barrels per day, representing 30% of the total of all oil field waste water produced in California, is actually available for agricultural uses. This water is produced in the Kern Front, Mount Poso and the Poso Creek Oil Fields located north of Bakersfield and east of Highway 99, and is used for raising grain, alfalfa and garden crops or returned to the Kern River.

OIL FIELD WASTE DISPOSAL SYSTEMS:

There are eight principal waste disposal systems serving oil fields. They represent a total capital outlay of approximately \$6,000,000 and an annual operating cost of approximately \$1,000,000.

There are at present 200 injection wells throughout the State, which cost approximately \$7,000,000 and are operated at an annual expense of \$2,700,000.

Collection, cleaning and seepage basins of Valley Waste Disposal Company in the San Joaquin Valley cost approximately \$100,000 plus an annual operating cost of \$35,000.

Thus the sum total of the petroleum industry's investment in oil field disposal systems alone is \$13,100,000 with a current annual operating cost of \$3,735,000. These figures do not include several million dollars spent by operators for gathering and storage facilities on their own respective properties throughout the State.

Gentlemen, I have placed on the wall a map of the southern portion of the State of California showing the water pollution control districts in which the oil industry is concerned. Those districts being Numbers Two, Three, Four, Five and Eight. Those little wiggly black figures are the oil fields in the state, the hatched figures represent the gas fields up in the Sacramento area. The small red lines numbering from 1 to 8 are the waste disposal systems which have been constructed by the oil operators, beginning in Orange County, those serve northern Orange County, then Santa Fe Springs, and Signal Hill, Inglewood, Ventura Avenue, the Lompoc fields, and then further north the Orcutt fields. The large area marked "Injection and Seepage" in District No. 5 is in the San Joaquin Valley where as I indicated previously most of the water - or a good deal of the water is injected into subsurface formations. The refineries are also shown, and Mr. Easthagen will discuss them when he makes his talk following me. Incidentally, this map is introduced into the record and may be retained by the committee if desired.

DISPOSAL ACCOMPLISHED WITHOUT DAMAGE:

With the possible exception of a few isolated locations in the San Joaquin Valley, which are currently under study by the petroleum industry and the Regional Water Pollution Control Board, to determine if corrective measures may be necessary, the disposal

of waste water from oil field operations throughout the State is being accomplished in accordance with the requirements of governmental agencies and without damage or threat of damage to water supplies, the impairment of receiving waters, or to fish or wild life. That's quite a broad statement but it's accurate.

WATER POLLUTION CONTROL ACT:

While it has been important to present to you as briefly as possible the background and accomplishments of the petroleum industry in disposing of its waste water, it seems to us that it is of more concern to your committee to learn of the coordination and cooperation of our industry with governmental agencies, and what has been accomplished in this direction, particularly with respect to the Water Pollution Control Act.

By and large the petroleum industry has long since learned the advisability and necessity of cooperating with agencies on all levels of government with regard to its waste disposal problems. Consequently, when the Water Pollution Control Act was being considered during the 1949 Legislative Session, we took an active part, along with cities, counties, various state departments and other industries, in resolving the provisions of this Act.

We believe it is a sound, effective and fair law. Fundamentally it provides:

1. The disposal of sewage or industrial waste shall not adversely or unreasonably affect the waters of the State for domestic, industrial, agricultural, navigational, recreational or other beneficial use.
2. For the regional control of water pollution, subject to adequate State supervision.
3. For the coordination of the activities and actions of various State agencies and the political subdivisions of the State.
4. For the right of cities and counties to adopt and enforce additional regulations, conditions, restrictions and limitations.
5. For the obligation of the State Board to correct any existing or threatened condition of water pollution in the event of the failure of any regional board to take appropriate action.
6. For the adequate authority of enforcement by a regional or the State Board through injunctive proceedings instituted by a district attorney or the Attorney General.

EFFECTIVENESS OF WATER POLLUTION CONTROL ACT:

Obviously no law is any better than its administration and enforcement, and in this regard it would be appropriate to cite examples of the effectiveness, from our experience, of the Water Pollution Control Act:

Several years ago there was a question as to the quality of the water being discharged by Oil Operators Incorporated, serving Signal Hill, into the County Flood Control Channel. A meeting was called in Long Beach. Representatives of 27 governmental agencies, city, county, state and federal, were present. When three or four of us, representing the petroleum industry, arrived we felt as though we were attending a convention. The effectiveness of this cumbersome assemblage soon bogged down and was entirely submerged by sheer weight of numbers.

Today this same company, in the same location, is confronted with a vastly more complicated problem - that of rebuilding its entire 22-acre plant--as the result of a projected state highway through the middle of it. Thanks to the advent of the Water Pollution Control Act, only three governmental agencies are now concerned and currently represented at our meetings - the Regional Water Pollution Control Board, the Industrial Waste Engineer's Office of Los Angeles County, and the Los Angeles County Air Pollution Control District. We are constructively coordinating our thinking and making real headway.

I was impressed by a statement made by Mr. A. M. Rawn, Chairman of the State Water Pollution Control Board, in his testimony before your committee in San Francisco. As I remember, he stated in effect that we "tread lightly" until agreement was reached with other state departments regarding their respective jurisdictions and responsibilities, and to avoid any overlapping of administration as a result of the new Water Pollution Control Act. This same spirit of cooperation and coordination has been exhibited between regional boards and counties, such as Los Angeles and Orange, which have enacted industrial waste disposal ordinances, and has greatly simplified the intercourse of the petroleum industry with city, county and state agencies.

The oil operators in the San Joaquin Valley were faced with a difficult disposal problem. Many wells in many fields were old and marginal, producing as much as 10 to 15 barrels of water with each barrel of oil, and could not stand expensive waste disposal systems. Through the careful, persistent and diplomatic approach of Colonel Joseph Gorlinski, Executive Officer of the Regional Board, in cooperation with other state departments and divisions and the oil operators, much has been accomplished. This could not have been done by the issuance of warrants, citations, arrests and prosecutions; it would have only aggravated and prolonged any solution. It has been our experience that this same approach, with corresponding accomplishments, has been

characteristic of other Regional and State Boards in the discharge of their responsibilities under the law.

The foregoing are only a few of many examples which could be cited regarding the effectiveness of the Water Pollution Control Act. However, it must be kept clearly in mind that the philosophy of the law, which incorporates self-policing, requires the enthusiastic support of industry in concert with appropriate administration by the State and Regional Boards. That's characteristic, of course, of any law, but I think a little more so in this instance where it does require a certain amount of self-policing.

REVIEW OF THE ACT AND ITS ADMINISTRATION BY THE INTERIM COMMITTEE:

The enactment of every law, particularly one which affects a number of State departments, cities, counties, industry and others, is bound to give rise to much discussion and some controversy, and usually results in a compromise of all viewpoints. The Water Pollution Control Act is no exception.

Notwithstanding our confidence in the effectiveness of the present law, we think it is a very healthy state of affairs for the Legislature, after any law as important as this one has been in effect for a number of years, to back off and through a committee such as yours take a good, careful look at it and determine what changes, if any, should be made to improve the law or its administration. You may expect the full and continued cooperation and support of the petroleum industry.

CHAIRMAN MEYERS: Thank you, Mr. Ferry. I have one observation to make - on page 4, Mr. Ferry, "the disposal is accomplished without damage" - that is a pretty strong statement to make - without damage or threat to water supplies, the impairment of receiving waters, or to fish or wild life.

MR. FERRY: I think so. It is a strong statement. However, we feel that we can substantiate it with the exception, as I say, of a few isolated cases in the San Joaquin Valley which are now under consideration by the regional board with the assistance, I believe, of the Department of Natural Resources and others. In most all of the oil fields in Southern California, the operators are connected to waste disposal systems which either go to the ocean or which in turn are discharging into sewers which go to the ocean. In the San Joaquin Valley we have a few more injection wells to drill. With these wells, that water will be taken clear down into the oil formations several thousand feet below the surface.

CHAIRMAN MEYERS: I understand that one of your colleagues, Mr. Easthagen, is also here.

MR. JOHN H. EASTHAGEN: I am appearing before your committee today on behalf of the Western Oil and Gas Association and the

Refiners' Committee on Waste Disposal. My statement supplements those previously given by Messrs. Antrim and Ferry and deals more specifically with water pollution control measures used by petroleum refineries.

I am a registered professional engineer in the State of California and have been engaged in petroleum refinery waste disposal and pollution control work for about 25 years. I am, and have been for ten years, a member of the American Petroleum Institute's Committee on Disposal of Refinery Wastes. The API Committee on Disposal of Refinery Wastes was formed in 1928 and has been continuously active since that time. It has developed and keeps up to date through periodic revision a technical publication entitled "API Manual on Disposal of Refinery Wastes," which is published by the Institute. This is a cooperative effort on the part of the entire industry to constantly improve techniques and methods to prevent and control pollution. The manual is extensively used by all segments of the industry as a guide in the development of their waste disposal programs and facilities.

Mr. Ferry has already told you about the Western Oil and Gas Association and the activities of the oil field operators in solving their waste disposal problems. In addition, the refineries have had since 1930 The Refiners' Committee on Waste Disposal, whose membership consists of representatives of the principal oil refineries in the Los Angeles Area. This latter group employs a full-time investigator to work on their water pollution control and holds frequent meetings to exchange information on waste disposal problems, techniques, and practices.

I have mentioned only a few of the various groups that work on refinery waste disposal and pollution control problems to illustrate the consideration that is given by the industry to this subject. The industry has long been a leader in research, development, and installation of facilities to effectively handle their waste streams. The industry takes pride in its accomplishments in preserving the fresh waters of the State for municipal, industrial, and irrigation supplies, and both the salt and fresh water for sport fishing, recreation, and such beneficial uses.

Petroleum Refining

Petroleum refining is an important industry in California. There are 40 petroleum refineries in the State with an aggregate daily capacity for processing 1-1/4 million barrels of crude oil. The 13 largest refineries are located in the Los Angeles and San Francisco Bay Areas.

Refining of petroleum consists of fractional distillation to separate the various hydrocarbons into distillates of various boiling point ranges, application of heat and pressure with or without the use of catalysts to alter the molecular structure of some of the hydrocarbon distillates, and chemical and mechanical

treatment of various fractions or products to remove impurities. The specific processes used vary considerably, depending upon the composition of the crude oil being processed and the products desired.

The petroleum refining industry is a large user of water, both fresh and sea water. Water is used for cooling, steam generation, washing of equipment, washdown of paved areas, washing of products, and for normal domestic sanitation requirements. The major use of water is for cooling. The quantity and type of water used vary widely, depending upon the location and environmental conditions surrounding each refinery. However, in the broad picture, the use of water in refineries falls into two common patterns.

First, those refineries that are located adjacent to the ocean, large rivers, or bays use large volumes of water from these sources, primarily for cooling, on a once-through basis. This is possible because the tidal action, currents, or rate of flow past the refineries is so great that the temperature of the source water is not appreciably altered by the amount of heat transferred to the water in the cooling operation. In California, where fresh water is at a premium, this type of operation is limited to the use of ocean or brackish river waters. In those refineries where ocean or brackish river water is so used, the use of fresh water is generally limited to steam generation, drinking water, sanitary purposes, and processing operations requiring only minor amounts or where the use of sea water is impractical due to corrosion difficulties which would result.

Second, those refineries that are located inland and away from any large source of water are dependent upon fresh water from wells, aqueducts, or small rivers for all purposes. The scarcity of water under these conditions precludes its use on a once-through basis. The cooling water is therefore repeatedly reused by recirculating it over cooling towers, depending upon evaporation for heat dissipation. In these systems, the only consumptive use for cooling purposes is make-up for the evaporation and windage losses and the relatively small amount which must be withdrawn to control salinity of the circulating stream. Other water uses are the same as described in the preceding paragraph, namely, for steam generation, drinking water, sanitary purposes, and miscellaneous small processing operations using relatively minor volumes of water.

Some refineries use a combination of once-through and recirculation over cooling towers to meet their cooling water requirements.

The principal pollution control problem in handling refinery waste water is oil. The heat exchange and cooling units mentioned in the preceding paragraphs are of either closed tube and shell type or the coil and box type. In the tube and shell exchangers,

the water flows inside small diameter tubes, and the oil flows outside the tubes in cylindrical shells. In the open box units, the oil flows within banks of tubes or coils which are immersed in an open box of water. In all of these units, the heat is transferred through metal walls, and the oil and water do not come into direct contact. These units are tested and made leakproof when installed or following repairs; but as a result of corrosion, erosion, and temperature changes, minor leaks do sometimes develop. This constitutes one of the waste disposal problems since the water must then be processed to remove and recover the oil.

As mentioned above, certain of the distillates and products produced are chemically treated. The bulk of the chemical reagents are separated from the oil in the treating plants. However, to remove residual traces of these chemicals after treatment of the oil, a water wash is sometimes used.

Another problem often encountered is in the disposal of chemical wastes. Insofar as is practical economically, these wastes are processed for recovery of usable chemicals. Where recovery is impractical, the wastes are generally neutralized or treated to remove constituents which might damage the waters into which the effluent is to be discharged. In some instances, these wastes are hauled far out to sea for disposal in approved areas.

The disposal of sanitary wastes does not generally constitute much of a problem as most refineries segregate these wastes in separate streams and dispose of them through municipal systems or septic tanks. In all cases, sanitary wastes from refineries receive a treatment equal to or better than the treatment needed to protect the public health.

As mentioned in the preceding paragraphs, the principal pollution control problem in handling refinery waste water is oil. The method of preventing the escape of oil from refinery property is by means of one or more drainage systems which deliver the water to one or more gravity-type oil-water separators to remove the oil and sediment from waste waters. In some cases, this system may be supplemented by auxiliary separators at points within the refinery where it may be advantageous to treat separately certain wastes. Such an arrangement permits the collection of the oil at the point of origin and prevents its entry into the main drainage system so that the main separator will receive only the more easily separable wastes from general sources.

It is general practice to segregate and collect waste streams of similar nature in separate systems. These streams are then treated by specially developed procedures to remove pollutants and stabilize the waste. In some cases this may be done as an integral part of the oil processing operation. Thus, the waste waters leaving the refineries are maintained in a condition which will not adversely affect the aquatic life in the receiving body of water.

Oil-water separators may assume many shapes and forms. During the past 20 or 30 years, much research and experimental work have been done by the petroleum industry on gravity-type separators which have led to the development of fundamental principles which provide mathematical bases for the determination of separator sizes and dimensions. These bases, together with detailed recommendations, are presented in the Manual for Disposal of Refinery Wastes published by the American Petroleum Institute. These separators are generally provided with skimming and scraping devices for the collection and removal of separated oil and sediment. In some instances, large earth-banked settling ponds are also used.

Gravity-type separators are limited to the separation and retention of immiscible liquids either appreciably heavier or lighter than water. They will not separate nor retain substances in solution or stable emulsion. As the individual influences of soluble contaminants cannot always be definitely foretold, they must be considered in the light of their effect on the water in which they are carried. The extent of their effect becomes a subject for consideration only on the basis of their influence upon the body of water into which the waste is discharged in relation to the various uses to which this latter body of water may be subjected. This may vary widely with each locality.

The petroleum refineries have done extensive monitoring for many years to control quality of their effluents. Over a hundred million dollars has been spent on basic waste disposal facilities over the past fifty years by refineries in California. A recent survey has shown that an additional ten million dollars has been spent during the last seven and one-half years in voluntary and cooperative action under the present water pollution control act to further improve effluent quality. These facilities are being operated at an annual expense to the industry of over three and one-half million dollars.

Good practice followed by the refineries is based upon the general principle that plant effluents should not contain substances which after mixing in the larger body of water will damage that water.

Mr. Ferry has already reviewed for you the effectiveness of the present water pollution control act in improving the quality of waters within the State. The accomplishments of cooperation, as provided for in the present law, have been mentioned several times in this presentation. Another important feature that has made the present law effective is the coordination by the local water pollution control boards of the requirements of all the multiplicity of state and local agencies dealing with water and water recreation; whereas, formerly industry had to deal with 15 or 20 different agencies, sometimes with conflicting views, it is now only necessary to deal with one. This is not only less troublesome and costly to industry, but it speeds up getting the job done. After all, this is what we all want.

The refiners believe that more has been accomplished in about seven and one-half years, under the present law with the cooperation of all concerned, than was accomplished in thirty years under former laws. We believe that the present law, although rigorous and demanding, is a sound, effective, and adequate law.

CHAIRMAN MEYERS: We appreciate having your views. I might say at this time that Mr. Ferry indicated that the committee could have the map for future reference. We will make it part of our record.

The next person on the agenda is Mr. Duncan A. Blackburn, who is the Chairman of the American Waterworks Association, California Section.

MR. DUNCAN A. BLACKBURN: I am Chairman of the California Section of the American Water Works Association. This is an organization of 1500 members representing all major and most of the 780 largest developers and purveyors of domestic water in the State of California.

Although the California Section of the American Water Works Association supported the original water pollution legislation, time has shown that many improvements might be made as the Water Pollution Control Act does not appear to function as originally desired, due either to misinterpretation of the law or a lack in the law itself.

The California Section has a very active committee studying water quality. One facet of the work of this committee is to study the effect of the present Water Pollution Control law and its application towards the protection of the water supplies of the State of California.

On June 20, 1958 this Water Quality Committee held an all-day meeting in Berkeley to discuss the report of the five State Department Heads with respect to suggested changes in the Water Pollution Control Act. The considered opinion of those attending that meeting on June 20th was that the recommendations of the five department heads were a long and constructive step toward improving the operations of the Water Pollution Control Board. The relationship, or lack of it, of the authority of the State Water Pollution Control Board to the regional boards was stressed. It was considered necessary that the State Water Pollution Control Board develop the over-all policy. This should govern the operations of the nine regional boards and not permit each of those boards to be as completely autonomous as they are at the present time. The basic principle should be that over-all state policy should be formulated to guide and govern the policy of the Regional Water Pollution Control Board.

It was also the considered opinion of those present at the committee meeting that considerable further study of the recommendations of the five department heads was necessary.

It was also believed that should any criticism be offered relative to the recommendations of the five department heads, it would be that these revisions did not go far enough. To what extent, however, the committee was not yet prepared to state.

For example: Revisions relative to the disposal of waste where potential contamination might exist will require considerably more study and also a study should be made regarding the capping or sealing of old and abandoned wells.

Mr. Derby mentioned wells in his paper this morning and the meeting of this committee particularly was referring to the abandoned wells which have never been plugged so that there might be problems.

As Chairman of the California Section, it is the prayer of the Executive Committee and of the Water Quality Committee that time be allotted to a further presentation some time after November 1, 1958. This will allow time for formal action by the Water Quality Committee, by the Executive Committee of the Section, and by the Section as a whole at its Fall Conference.

If I understood what I heard today there may not be another meeting of this committee. If that were true I would like to ask if that statement could be a written statement after November 1.

CHAIRMAN MEYERS: Well, Mr. Blackburn, for your information it hasn't been definitely decided, but I believe that there will be another hearing of this committee in the Bay Area before we formulate policy and make recommendations. Mr. Blackburn, thank you for giving us your views.

The last person appearing on today's agenda is Mr. William J. O'Connell, Industrial Consultant.

MR. WILLIAM J. O'CONNELL: I am appearing before your committee by direction of the Board of Supervisors of Contra Costa County.

I am the engineering consultant on water supply, sewerage and refuse disposal problems to the Board of Supervisors, the Planning Department, the Department of Public Works and the Health Department of Contra Costa County. I have spent over thirty years working exclusively on Municipal and industrial water supply, sewerage and waste disposal projects and on programs of air and water pollution control.

Contra Costa County makes the most diverse, if not the greatest, use of its public waters of any county in the State. Its situation is similar only to that of Solano County. There are no inland waters in Contra Costa County other than the terminal reservoirs of the East Bay Municipal Utility District. The county economy is built along the shores and depends upon full and exten-

sive use of the waters of San Francisco, San Pablo and Suisun Bays, and of the Sacramento-San Joaquin and Old Rivers for domestic, agricultural and industrial supplies. These same waters are used for navigation, for recreation, for support of an important sport fishery and, most important, for dilution and disposal of treated sewage of all of its cities and great industries.

Over 60 percent of the tax revenue of Contra Costa County comes from assessments on heavy industrial works, such as are located along the shore from El Cerrito, through Richmond, Giant, Oleum, Selby, Crockett, Martinez, Avon, Port Chicago, Pittsburg, Antioch, and on to Oakley. Industry has and will locate in Contra Costa and Solano Counties because of the deep-water shipping facilities and the presence of off-shore waters for use as industrial process supplies and for disposal of treated wastes by dilution.

The water pollution control program in Contra Costa County is under the direction of two Regional Boards - namely, the Central Valley and the San Francisco Bay Boards, V and II, respectively. There has been full cooperation between the Boards, and comparable policies are followed by both, to the end that all pollution or nuisance situations which have existed have been or are being corrected. The treatment of established municipal and industrial discharges has been or is being up-graded, and proposed industrial discharges are being studied in detail before establishing requirements. It is our opinion that the requirements being established for new dischargers are unnecessarily rigorous, provide too little area of water for dilution and call for elaborate monitoring programs of the conditions of receiving waters, which monitoring imposes costs on the discharger far beyond the value of the data to the variety of agencies reviewing these data, including agencies of Contra Costa County.

The water recreation industry is of growing importance to the County. The shore lines and Delta are dotted with small craft harbors which are also the focal points of the usual arguments between fishermen, speedboat enthusiasts and water skiers. In addition, it is this group who are frenzied by exaggerated reports of water pollution and who are the mainstays of criticism of the Water Pollution Control Boards.

Contra Costa County asks that the attacks on our cities and industry by the Department of Fish and Game and recreationalists be scrutinized objectively and, particularly, be appraised as devices for obtaining self-serving publicity.

It is important to the balanced future and economy of the County that pollution control continue on a case-by-case basis. No change in the law is conceivable which would provide State-wide uniformity in pollution control and would serve the needs

of other counties and the needs of Contra Costa County as well.

The economy of Contra Costa County will be hurt if the Legislature accepts proposals of the Departments of Fish and Game and Water Resources on undocumented claims that injury to Contra Costa County is necessary for the benefit of the state as a whole - such proposals as are exemplified by banning commercial fishing in Suisun Bay and transfer of water across the Delta under the Biemond Plan.

We ask that the law not be changed to limit the right of dischargers to "trials de novo" on the entire record and actions of these administrative agencies.

We ask that the Water Pollution Control Boards be admonished to emphasize, in their demands regarding "monitoring programs", the collection of information on the nature of the discharged effluent and be admonished to limit their demands for extensive analysis of the receiving waters. We ask that the Boards provide for undertaking of receiving water studies and that they avoid including observations in the monitoring program of situations which are agreed to exist.

Representatives of Contra Costa County have not agreed with the Water Pollution Control Boards regarding the import of or necessity for parts of the requirements imposed on our cities and industries, but we do recognize and appreciate the important accomplishments in water pollution control made under the jurisdiction of Boards II and V. It is our opinion that much could be lost and little could be gained by substantial changes in the approach to water pollution control.

Although the Water Pollution Control Boards have not publicized their efforts, they have in fact accomplished more by cooperation, education and coercion in eight years than was accomplished in thirty years from 1920 to 1950 by other agencies with unlimited powers and the "big stick" approach.

In view, Mr. Chairman, of some of the testimony that has been presented this morning, I would like to read into the record information on the case of the smelter that was referred to. There is no secret that the company that was referred to in this morning's testimony is American Smelting and Refining. That company is internationally recognized as one of the outstanding authorities on pollution control work throughout the world. They have for many, many years, since the early 20's, if not as early as 1917 or 1918, maintained an extensive organization and staff whose time has been devoted entirely to the development of pollution control programs for themselves and their industry. They are a wholly cooperative organization. Last summer the Department of Fish and Game came before the Water Pollution Control Board No. II and because of this

difference in interpretation of the law as to whether they can proceed with their own independent action on continuing discharges asked the Water Pollution Control Board to certify the discharges of the American Smelting and Refining Company, which discharges have not changed substantially since 1925, as a pollution. There was no evidence whatsoever of any fish killed or any damage. As of approximately September 30 the matter was reviewed formally by the Regional Water Pollution Control Board and this newspaper report is factually accurate and reads as follows: It appeared in the Richmond Independent:

"Engineer H. C. Knapp told a state regional water pollution control board meeting today that waste discharges from the American Smelting and Refining plant at Selby are not poisonous, despite complaints from the California Fish and Game Commission.

"Knapp, in a preliminary report, said samplings taken from the water near the outfall from the big smelter at the plant, do not show acidity harmful to fish. He was reporting on tests made last August following complaints from the Fish and Game Commission, which had asked permission to prosecute the Contra Costa County smelting company on charges of water pollution.

"Robert L. Jones, the commission's regional manager, has said tests made July 12 showed a high concentration of acidity harmful to fish.

"Knapp, who said he has yet to make a survey on lead and zinc waste matter, will make a full report at the board's November meeting."

This matter was followed through and the foundation was established for establishing requirements and a monitoring program. After many, many meetings and negotiations, a letter was sent to all of the agencies of interest in the state summarizing the factual findings in a tentative resolution which was considered at the San Francisco Regional Water Pollution Control Board meeting yesterday. It's a resolution together with monitoring requirements of approximately ten pages. It sets forth for the protection of fish and aquatic life the concentrations of metallic elements, the dissolved oxygen and the pH limits in the offshore waters. The American Smelting and Refining Company contends and has evidence to show that they are meeting these requirements now and have no problem before them but regardless of that intend to do further work.

The monitoring program that is under discussion for that particular operation is to require between 5,000 and 8,000 analyses of the plant effluent and the receiving waters per year and will probably cost in the order of somewhere between \$10,000 and \$15,000 a year to monitor the operation. There has never been a complaint of any damage to our knowledge in Contra Costa County to the waters by the operation of that

smelter and we would like very much to have the records show that in view of the unsupported newspaper publicity that has come out stating otherwise.

ASSEMBLYMAN HEGLAND: I have two brief questions. Do you concur with or disagree with Mr. Banks in the expression of philosophy that the use of water for waste disposal is a privilege and not a right?

MR. O'CONNELL: I agree with what I believe Mr. Banks is saying, and I believe that that philosophy is set forth in the law. I do think it is a beneficial use and any beneficial use under the California law whether it be the appropriation for water to irrigate a rice field or the use of water for recreational purposes is in that sense a privilege, and if Mr. Banks is using the word in such fashion, I thoroughly agree with him. It is a beneficial and necessary use of all waters, whether they be in California or Illinois or New York, and if the word privilege implies a reluctant granting of that right, and I can't read his mind, then I don't agree with him.

ASSEMBLYMAN HEGLAND: Thank you. My second question is, do you concur with or disagree with the philosophy expressed by Mr. Banks in saying that the first in time on the use of water for disposal purposes is first in right?

MR. O'CONNELL: I do not agree that under any conditions anybody establishes a right nor do I believe the law provides any indication of a right to use water for the disposal of wastes if it damages other beneficial uses. And to the best of my knowledge, every set of requirements that have been established by the regional water pollution control boards contains some such phrase as this, which I am reading from the proposed Selby requirements: "That these requirements are not a guarantee to the discharger of a capacity right in the receiving waters, and will be upgraded whenever this appears necessary to maintain the quality of the receiving waters suitable for their beneficial uses," and we in Contra Costa County since we have some major domestic water supplies that are taken from immediately adjacent to points of industrial waste discharge, would be the last to ask for a right of damages progressively improving beneficial uses.

ASSEMBLYMAN HEGLAND: I did not quite make the question clear. Suppose the maximum capacity - I'm not an engineer - of the water to absorb waste would be exhausted by six users with long established practice in this field, here comes a new competitor in the field, operator number seven. Can and do you agree with the philosophy that the position of these six should be adjusted to make way for the new competitor?

MR. O'CONNELL: Competitor or not, my answer to that is yes. We have a certain amount of water in the State of California

and we are facing the same problem with respect to its initial use as its use for waste disposal.

ASSEMBLYMAN DONALD DOYLE: The information given to the committee by Mr. O'Connell certainly brings out many facts that we have tried to bring to the Legislature and to other interested parties for some time. He didn't tell you, and I can't give you the exact figures, but there are millions and millions of dollars of industry along that few short miles there in Contra Costa County along the river. And of course we are concerned, industry is concerned, management and labor is concerned and all others, including the agricultural people of eastern Contra Costa County, with water pollution, and as Mr. O'Connell told you, we're trying to do something about it, and I think he made it very clear as to how we feel - the three state representatives from that county - Senator Miller, Assemblyman Masterson and myself - plus the counties, the cities, other organizations involved - how we feel about the present law. I don't think we have to ask the question of whether we're talking in circles or whether we're down to the facts, and I believe the facts have been presented.

I would like to ask Mr. O'Connell a couple of questions. We had other cases in Contra Costa County, did we not, as I recall from the past, didn't we have a case of the California Cannery in Antioch as far as pollution is concerned?

MR. O'CONNELL: Yes. Action was taken under the Fish and Game Code, or action was initiated under the Fish and Game Code by the Department against the Western California Cannery and Hickmont Canning Company in Antioch, which matter was heard before the courts early this year.

ASSEMBLYMAN DONALD DOYLE: Have there been others?

MR. O'CONNELL: Yes. The disposition of the California Cannery and Hickmont Canning Company was that the matter was dismissed on motion of defendants' counsel on the basis of total lack of evidence to support the charges against either of two industries. There has been a charge, not under the criminal code, but under a civil action initiated against Stauffer Chemical Company. Just why this is a civil action we are not clear, alleging that they were responsible for a fish kill in the vicinity of Point Isabel some time last year. This action is to recover damages in terms of the so-called value of the fish from the company. We find in the county absolutely no evidence of correlation between the fish kill and any other action and so far have been unable to find any evidence from anyone who can say what caused that fish kill. The fish kill was comparable to many that have happened naturally throughout the world, but that action is pending. There is another action that has been directed against the Dow Chemical Company, the details of which I am not familiar.

ASSEMBLYWOMAN DAVIS: You made the statment that there was no factual evidence to actually prove that there was a pollution problem relative to the killing of the fish, but as I recall there was a tremendous amount of fish actually lying around dead. Did I understand you correctly to make the statement that this is a normal thing that occurs once in a while as far as the fishery is concerned?

MR. O'CONNELL: I would not say that it is a normal thing. It is a situation that has occurred in many places throughout the world over the history of fisheries.

ASSEMBLYWOMAN DAVIS: But can you tell me or do you know what is the cause of such events?

MR. O'CONNELL: No. I mean you have one classic one that is often referred to as the "red tide of Florida." That one is fairly definite as to what caused it - an upwelling of a large mass of water completely from the lower - from the bottom of the bay - completely devoid of oxygen or even containing hydrogen sulfide can be responsible for a fish kill. I would not attempt to add confusion to the confused picture by another guess.

ASSEMBLYWOMAN DAVIS: Believe me, I am more confused now than I was before.

MR. O'CONNELL: We in Contra Costa County are, too, because most of those fish were striped bass, and they're a rather sacred fish down here.

ASSEMBLYMAN ALLEN: What you're trying to say, Mr. O'Connell, is that there have been some of these natural kills through phenomena that no one has ever been able to trace, in isolated places away from any chance of industrial contamination. I think one of the most recent in South Africa was a tremendous fish kill that occurred down there - there was no industrial pollution - they didn't understand what caused it. Is that what you're trying to tell this committee?

MR. O'CONNELL: That is correct, and I do not want to say that such is the situation in the Richmond fish kill, but there is absolutely no correlation between any industrial discharge and the kill.

ASSEMBLYMAN ALLEN: Right. On the other hand, on a Friday afternoon, through the carelessness of employees who probably wanted to clean up a section of the chemical lab that wastes could have been temporarily discharged through either negligence or by accident, too. That is possible, also.

MR. O'CONNELL: That is entirely possible. However, a survey of the operations does not show any place where any such concentration of material could have been discharged. This kill

occurred apparently over a tremendous area. Let us keep in mind that the kill was reported some time, rumored, talked about, some time before it was investigated, and it is most unfortunate that the agencies involved did not have the opportunity to get there and observe the kill in the process.

ASSEMBLYMAN ALLEN: Well, that contends with what we heard up north that this was first reported on a Thursday night, and it was the following Monday before anyone went out to investigate whether or not there had been a kill made. Is that right?

MR. O'CONNELL: That has been the report. I can't testify as to whether that was the fact or not.

ASSEMBLYWOMAN DAVIS: I have one further question. Are you saying that the Department of Fish and Game actually did not come to Contra Costa County to witness this kill in sufficient time to verify what might have been the cause? Is that what you're saying?

MR. O'CONNELL: I am saying that to the best of our knowledge and information, the Fish and Game representatives were not informed in time to be there at the time of the kill. The information and alarm came substantially after the fact.

ASSEMBLYWOMAN DAVIS: Why would you say they were not informed?

MR. O'CONNELL: I said, to the best of our knowledge.

ASSEMBLYWOMAN DAVIS: What is your personal opinion, or do you care to say, why they might not have been informed in sufficient time?

MR. O'CONNELL: I would say that this is a very common situation with respect to water incidents. I am sure that there are many incidents that happen on water, and this did not happen on the shore apparently. This apparently happened some distance offshore, and by the time a boatman comes in, it's late in the afternoon and he may discuss what he saw on the dock and not be prepared to determine whether it was a major kill - the magnitude of the kill certainly could not have been evident by the original observations. But this is the situation one is up against in these biological studies. Something happens and the magnitude of it is not evident until long after the conditions that were necessary to create this kill have been dispersed or have gone away.

ASSEMBLYMAN BELOTTI: Mr. O'Connell, would you say that was just a coincidence that this fish kill should come to pass at a time when the Legislature was considering the prohibition of nets in the Sacramento River and the Carquinez Straits?

MR. O'CONNELL: Well, first of all, I can't answer that question. But secondly . . .

CHAIRMAN MEYERS: In all fairness, we should get Assemblyman Donald Doyle back here. I think he'd be very interested in this matter.

ASSEMBLYMAN LINDSAY: At the last sentence in the second paragraph you said "We ask that the boards provide for undertaking of receiving water studies and that they avoid including observations of situations which are agreed to exist."

MR. O'CONNELL: Mr. Lindsay, in making my statement I interlineated the phrase that is missing there, and I would ask that you do the same in your copies - "including observations in monitoring programs of situations that exist." There is certainly every reason for the board in its river surveys to observe situations as they exist.

CHAIRMAN MEYERS: I take it Mr. Doyle has been detained. Mr. Belotti, would you re-state your question, please, and Mr. O'Connell may answer.

ASSEMBLYMAN BELOTTI: Well, the question, Mr. Chairman, is to Mr. O'Connell, whether or not in his opinion it was just a coincidence that the kill of fish took place just about the time that the Legislature was considering legislation to prohibit the use of nets in the Carquinez Straits and on the Sacramento River?

MR. O'CONNELL: Mr. Belotti, if you will excuse the impertinence, that, "When did you stop beating your wife?" question can be answered two ways, and I would like to make very clear that I have no opinion on this matter at all. If it was not a coincidence, it was at least in some respects fortuitous. Now, what I would like to say is that I don't conceive of any amount of toxic material - I don't know of an amount of toxic material that a saboteur on either side - I would like to use the word either side - could have successfully spread in the area that might have caused such a kill. Were it acid as was indicated, every indication of ours is that it would take a very large amount to do the job. My feeling is that there was no malicious action taken that resulted in that kill. That's purely an opinion and only suggested in order that we not add more rumor to an already confused situation.

ASSEMBLYMAN LINDSAY: Mr. Chairman. I agree with Mr. O'Connell that it would have been a very expensive amount of material to have used in that quantity and as you said, no saboteur on either side could probably have afforded it.

ASSEMBLYMAN ALLEN: That brings one more - the situation occurred to striped bass, yet there were other species of fish present evidently in the same area that this did not affect.

MR. O'CONNELL: Mr. Allen, I believe other fish were affected, but let me point out again that that striped bass is by far the most important and most sacred fish to discuss in Contra Costa County. We have little interest now in sardines.

ASSEMBLYMAN ALLEN: At the time that question was specifically asked, I said, "Well what about the salmon that were running up there? Were there any of those found?" My answer was that some of the people in the Fish and Game set me straight - no, no, the ones that we found were the striped bass, and those were the ones that we saw in the picture - there was no evidence of salmon or any of the rough fish or anything else that was affected. Now, they may have gone out in the channel and sunk to the bottom, and not got on the tidelands or dump piles. But those were the fish we've seen and observed were striped bass in all of the pictures.

CHAIRMAN MEYERS: Mr. O'Connell, I'd like to just make an observation at this point. I am from San Francisco, right across the bay from where this situation took place, and I am not professing to be an authority on the facts surrounding the fish kill, but I would say that from what information I did have, and it came from fairly authoritative sources, I was advised that there were factors which brought about this fish kill, and from your observations here today, one would conclude that there was nothing contributing to such a fish kill - it came about from natural sources. I would be inclined to differ from your observations in this regard.

MR. O'CONNELL: Mr. Meyer, I am not prepared to say that this came about from natural causes. We do not know, and the Department of Health of the county was particularly interested in the problem for the reason strangely enough that fish were being picked up and consumed and they represented a food problem. And we followed the whole procedure rather carefully and are not ourselves able to find any correlation between any industrial activity and the fish kill.

CHAIRMAN MEYERS: Well, then, I would venture to say that some of the views expressed by some of the state agencies in question do not agree with the views that have been expressed by you here today.

MR. O'CONNELL: That is correct.

CHAIRMAN MEYERS: Now, I would say one thing further. I note here on page 3, paragraph 2, quoting "Contra Costa County asks that the attacks on our cities and industry by the Department of Fish and Game and recreationists be scrutinized objectively and particularly be appraised as devices for obtaining self-serving publicity." Do you feel as though the Department of Fish and Game has been unfair on some of their approach and as well, the recreationists and so forth, have they been unfair in their approach to some of these matters which are of vital concern to

not only Contra Costa County but to the people in the whole area?

MR. O'CONNELL: The answer to your question simply, Mr. Meyers, is Yes. The reason has been that throughout all of the operations that have resulted in the great improvement of water pollution in Contra Costa County, there has been extensive cooperation. There has been no showing or effort ahead of time to correct these situations if they existed, and practically all of these situations are situations that have existed over many, many years, but rather that precipitous court action is taken without discussing and the matter is brought to a fighting point before a realistic effort has been made to solve the problem by cooperation.

CHAIRMAN MEYERS: Well, I'm not saying that industry hasn't done a good job. I mean, I believe they have, but when it is stated "to obtain self-serving publicity," that's a little bit too strong, because I happen to have a great regard for some of the groups whom I know, and I've worked with and they're trying to do a good job.

MR. O'CONNELL: I don't question their honesty or integrity in their publicity.

ASSEMBLYMAN BELOTTI: Mr. Chairman, along that line, Mr. O'Connell, then do you include along with the Department of Fish and Game here also the Regional Water Pollution Board who cooperated with the Department of Fish and Game?

MR. O'CONNELL: No, I do not. This Water Pollution Board has always proceeded with a program of public hearing, open consideration and taking of testimony even though it be in an informal hearing before taking of any action or issuing any edict.

ASSEMBLYMAN BELOTTI: You refer here to the recreational interests? You're not thinking specifically of any organization?

MR. O'CONNELL: No.

ASSEMBLYMAN BELOTTI: Of any group?

MR. O'CONNELL: I'm thinking of, very frankly, some of our own people in Contra Costa County.

ASSEMBLYMAN ALLEN: In short, Mr. O'Connell, what you want is a little fact-finding rather than fault-finding.

MR. O'CONNELL: That's correct, Mr. Allen.

Mr. Meyers, I wonder if you would like to have for the records these two documents?

CHAIRMAN MEYERS: By all means. Please.

Thank you, Mr. O'Connell. I might say at this time that it was called to our attention today from the gentleman appearing from the San Diego area - I don't have the information before me - dealing with the international situation - it was suggested that this committee ask the Legislature to introduce a Concurrent Resolution memorializing Congress asking the federal government to look into the situation down there endeavoring to correct the pollution situation and at this time I would like to entertain a motion that the committee go on record to do this.

ASSEMBLYMAN LINDSAY: Mr. Chairman, I'll move that the committee in the interim period also contact the Congressional members of our California delegation and tell them that at our hearing the problem came up and that we send a resolution from the committee rather than to wait for any action of the Legislature.

ASSEMBLYMAN DOYLE: Prior to November or after November?

ASSEMBLYMAN LINDSAY: Send it right now.

CHAIRMAN MEYERS: The pertinent thing to do is to try to help them.

ASSEMBLYMAN DOYLE: No one's going to be able to do anything about it until next year, anyhow.

ASSEMBLYMAN LINDSAY: Well, we don't know. Maybe it might gig the State Department a little bit to put some of our foreign aid funds to aid us.

CHAIRMAN MEYERS: Well, it has been moved and seconded. The members of the committee have heard the motion. All those in favor. (Resounding AYE) Those opposed - the motion is carried.

ASSEMBLYMAN DON ALLEN: Mr. O'Leary was the one who brought the subject matter up. And he said that he would see that the proper resolutions were prepared if we wanted him to. I think that's what he indicated to us, and probably if Mr. Hegland could get them and we could turn them over to you we would go ahead and approve them and send them through in accordance with this resolution.

ASSEMBLYMAN LINDSAY: We're trying to get some help out of the State Department on this.

ASSEMBLYMAN DON ALLEN: We should either get it or forget it.

CHAIRMAN MEYERS: That's the purpose of it, I mean. Sheridan, did you hear what the committee just said as far as the international situation down there?

ASSEMBLYMAN DON ALLEN: Let's ask Mr. Hegland to get those resolutions together.

CHAIRMAN MEYERS: We have concluded our agenda for today.

Adjournment till 9:00 A.M. July 2, 1958

July 2, 1958 9:00 A.M.

CHAIRMAN MEYERS: The meeting will please come to order. We have a fairly heavy agenda today, but we're going to move right along.

Next on the agenda is J. C. Merrell, Jr., Eleventh Naval District.

MR. JOHN C. MERRELL, JR.: I am Special Assistant for Sanitary Engineering at the District Public Works Office for the Eleventh Naval District. My statement follows:

The Navy cooperates with civil water pollution programs under policies prescribed by a BuDocks Instruction of 10 July 1953. These policies are based on Public Law 845 of the 80th Congress and an accompanying Executive Order.

In the Eleventh Naval District much of this cooperative effort has been accomplished through the efforts of the several Regional Water Pollution Control Boards. These local boards have provided the surveys, reports and hearings necessary for establishing requirements and procedures for meeting the Navy's needs for clean waters at their various activities. They have been a source of intelligent and accurate information in aiding the Eleventh Naval District to engineer its pollution abatement in accord with the stated policies. The requirements and policies established by these boards have also met the desire and policy of the Navy to cooperate in pollution abatement in accord with the corrective effort of the local communities. The Navy policy in these matters coincides with the regional controls presently used in California.

CHAIRMAN MEYERS: Mr. Merrell, for the information of myself and the committee, what area does the Eleventh Naval District encompass?

MR. MERRELL: The Eleventh Naval District covers the southern part of California and Arizona. It goes as far as Las Vegas, Nevada, up as far as Point Arguello in the coastal region of California and up to China Lake in the central region of California.

ASSEMBLYMAN DOYLE: Mr. Lindsay yesterday had a resolution asking that we memorialize Congress to do something about the San Diego area. Does that have anything to do with your department?

MR. MERRELL: It would. The Navy at the present time has one raw sewage discharge in the San Diego area. It has one other discharge in the Imperial Valley area. In both of these programs the Navy is moving with local people; for instance, recently they

have spent over \$300,000 as their share of capital improvements for the City of San Diego and spent about \$200,000 in on-station improvements to discharge three formerly treated sewages into the city systems. Unfortunately, to set up this system, the Navy moved too fast for the City of San Diego and the 10,000,000 gallons a month that is now being discharged is actually a burden. At Coronado they are chlorinating their raw sewage discharge - actually coliform counts within 50 feet of the bubble are within swimming water standards, and all engineering has indicated that the proper solution will tie in with Coronado and the City of San Diego. This will be done.

CHAIRMAN MEYERS: Mr. Merrell, you mentioned just two facilities, which are Naval installations, which are presently dumping raw sewage into the streams. I mean, what other facilities do you have in the area which are not actually dumping raw sewage but are still not completely under the prescribed requirements of the law?

MR. MERRELL: I would say that the rest of our sewage effluents are within the requirements of the law. In other words, we have actually coliform free effluents that are being discharged into waterways, and these usually percolate into the ground.

CHAIRMAN MEYERS: How many installations do you have in the area which are discharging?

MR. MERRELL: Slightly under 30 installations discharging their sewage effluent. In many of these the sewage effluent is entirely used or restored or evaporated aboard the station and none reaches the public water.

ASSEMBLYMAN DON ALLEN: In the Imperial Valley, that of course is in the Eleventh Naval District. I don't know what regional board that's in, but don't you have some sort of a problem down there?

MR. MERRELL: We have a problem. Our program is being funded in BuDocks at the present time. We have a proposal for removing this effluent or for treating it to meet the requirements of the local board in that area.

ASSEMBLYMAN DON ALLEN: That's down near Calexico ...

MR. MERRELL: That's at the El Centro Naval Air Station. This will be done in accord with a program of other local communities in the Imperial Valley. This is the way Congress has set it up.

ASSEMBLYMAN DON ALLEN: Well, yours is a minor problem, however, as compared to the one on the border south, there, isn't that right? There's another problem on the Mexican border down there in Imperial County. Maybe some of these regional board men might be able to describe it better than you can, but you have a

problem down there at Calexico, too, isn't there between Mexico and ...

MR. MERRELL: The greatest portion of the pollutional load in the New River is carried in, I believe, from Mexico.

ASSEMBLYMAN DON ALLEN: But it does present a very severe problem, doesn't it, at the present time?

MR. MERRELL: It is a problem that is being evaluated by the local board and they are urging communities to provide sewage treatment. One community is in the process of constructing a plant at the present time.

CHAIRMAN MEYERS: Mr. Merrell, Assemblyman Allen posed a couple of questions. How long has the Navy been working to resolve this problem? The progress has been a little slow, but as of recent date they have made good strides in attempting to correct some of these conditions.

MR. MERRELL: The bulk of the Navy's problem of sewage treatment was taken care of during the war and immediately after the war. In other words, they provided their own sewage treatment facilities at most of the installations. They had two primary effluents that were discharged to a farmer's pond that during a portion of the year would flow into Mission Bay. These are the two that were recently corrected by this expenditure of about \$500,000.

CHAIRMAN MEYERS: When you say recently, how long ago . . .

MR. MERRELL: Within the past year.

CHAIRMAN MEYERS: Thank you, Mr. Merrell.

The next person appearing on the agenda is Dr. Wheeler J. North, University of California, La Jolla.

DR. WHEELER J. NORTH: I'm from the University of California, Scripps Institution of Oceanography at La Jolla. I'm going to discuss this morning the current status of our research program on the effects of waste discharges upon the kelp environment. Before I begin my discussion, I wish to extend thanks from Admiral Wheelock in the Institute of Marine Resources to this committee for the invitation to present testimony.

The University of California's Institute of Marine Resources is currently conducting an investigation of effects our ocean outfalls may have had on the kelp beds of southern California. The work commenced November 1, 1957, and is being supported at the rate of \$20,000 annually by the State Water Pollution Control Board. We are also conducting another program, financed by the

Department of Fish and Game, which by studying normal beds is gathering background information to facilitate intelligent conservation of the marine resources involved.

The kelp beds constitute some of the most productive areas in our coastal waters. They are frequently teeming with marine animals, many of which are of economic interest to man; the kelp itself is of commercial value and the beds are highly valued by sportfishermen as a recreational resource.

In relatively recent times it was observed that the thick kelp beds near San Diego Bay and Los Angeles Harbor were thinning out and they soon all but disappeared. These losses took place for the most part during the past 15 years. Because of the proximity to these beds of ocean outfalls and industrial waste discharges, it has been hypothesized that these were the agents responsible for the disappearance. As with almost any widespread oceanic phenomenon, however, alternate explanations are often possible if the data are meager, and a more thorough understanding of the complexities involved seemed desirable before considering corrective measures which might prove drastic or expensive with no assurance that the desired effects might be achieved.

Accordingly, the State Water Pollution Control Board has taken the lead in this field by furnishing support to the Institute of Marine Resources' Kelp Program, enabling it to broaden the scope of the investigation to include pollution studies.

The purposes of these studies fall into three categories. In the words of our contract, the Program shall:

1. Describe the effects of ocean outfall discharged wastes upon the survival, growth, and general condition of kelp.
2. Measure the separate effects on kelp of such factors as:
 - a. Turbidity
 - b. Siltation
 - c. Diseases, parasites, and grazers
 - d. Nutrients
 - e. Toxicity
3. Reveal the concentrations of domestic sewage, industrial wastes, and components thereof in the sea water in kelp beds which are the maximum that the kelp can tolerate without being damaged.

Since this investigation has been active for only eight months we are not in a position, as yet, to formulate generalized conclusions. It is quite clear, however, even at this early stage, that we are not dealing with a simple situation. There are

occasional patches of kelp and other seaweeds in the vicinity of all the outfalls we have thus far studied, and several of these appear to fluctuate in size for reasons not yet known. Some outfalls near kelp beds appear to have much less effect on the plants than other outfalls located more remotely. A great many variables such as light attenuation, turbidity, effluent composition and volume, prevailing currents, and intensity of grazing, to name but a few, need to be evaluated for each outfall for a complete study. To complicate matters, at the present time many of these variables can be measured only crudely, at best.

It is obvious that a program such as ours, capable of supporting at the most only two investigators, will not be able to collect and evaluate the mass of information of which the above is only a portion, within a reasonable time. Therefore, we are not approaching the problem by the method of collecting large quantities of data on all variables which could conceivably be pertinent, hoping that the significant factors can sometime be isolated from the great mass. We are, rather, attempting to concentrate our efforts on a very few of what appear to be the more significant activities which might explain the loss of kelp.

The toxic properties of a few substances found in effluents have been tested by Dr. Kenneth A. Clendenning of our Institute. Composite samples of both chlorinated and unchlorinated domestic sewage lose toxicity at dilutions between 1 part in 10 and 1 part in 100. The effect of Chlorine itself in raw sea water was tested and found to have some toxicity in concentrations of 5 to 10 parts per million (ppm). Hexavalent chromium ion acquires toxicity at about the same level (10 ppm), while copper has been shown to produce adverse effects at much lower concentrations, 0.1 ppm being active. It is not yet known if concentrations comparable to these can be introduced into kelp beds by ocean outfalls. I might say that these are all constituents of some of the effluents of outfalls near kelp beds, however.

Our field studies have been concentrated during the past year at the Santa Barbara outfall (where a kelp bed comes to within about 100 yards of the terminus), the Whites Point outfall (where kelp has receded several miles from the terminus), and the Point Loma area (where the bed has thinned for several miles from the entrance to San Diego Harbor). There are abundant indications of grazing damage in much of the kelp remaining in in these areas. This could be caused by an increase in populations of grazing animals or by a reduced capacity of the plant to replace lost tissue. Light intensity within the water would affect the replacement capacity of the plant profoundly since plants depend on sunlight to provide their energy requirements. A measure of light intensities within the water can be gained in a crude manner by noting the depth where plant growth begins to thin out. At Whites Point and at places along Point Loma this cessation of growth seems to occur at depths of 30 to 40 feet. This is shallow water for plants to start disappearing and the explanation may

lie in the increased turbidities often found in the regions of outfalls and resultant decreased penetration of light into the water.

Substantiation of this hypothesis must, however, be accomplished before any conclusions can be drawn; the hypothesis is considered sufficiently attractive, however, so that in the immediate future considerable emphasis will be devoted to gathering pertinent facts on this subject.

ASSEMBLYWOMAN DAVIS: Dr. North, how long have you been making an analysis or study of the kelp beds - this study that you have underway now? How long have you been working on it?

DR. NORTH: Well, the Water Pollution Control Board studies started last November, and I became associated with the Fish and Game kelp beds study a year ago last November, so I have been associated with it about a year and a half. Before that I've been in many kelp beds in my interests as a marine biologist, but I haven't actually studied them.

ASSEMBLYWOMAN DAVIS: Do you have - at this point today - any estimate as to when you might complete this analysis so that you can give some firm conclusions?

DR. NORTH: By that you mean the State Water Pollution Control Board program?

ASSEMBLYWOMAN DAVIS: Yes, and also the part that you play in it that you started a year ago?

DR. NORTH: Now, I'm confused - I'm involved in two studies . . .

ASSEMBLYWOMAN DAVIS: Well, how long would it actually take you to complete your study that's underway now?

DR. NORTH: The State Water Pollution Control Board study we estimate will be completed in about three more years.

ASSEMBLYWOMAN DAVIS: And then you feel that by that time you will have some solid recommendations to make relative to this problem?

DR. NORTH: We hope to be able not only to explain the causes of the disappearance, but to be able to give some recommendations as to how the possible ways of correction, but that's our hope.

ASSEMBLYWOMAN DAVIS: Well, let me ask you a further question, and I certainly am not aware whether it takes this long or not - the necessity of the additional three years. Do you feel that the three years are necessary to complete an investigation of this kind? What do you, actually? Can you explain to me a

little more in detail just exactly what you are going to be doing in the next three years to complete this study?

DR. NORTH: Not entirely, because in research you always run into this problem that, if you knew what you were going to encounter, you wouldn't have to do research in the first place. You're investigating the unknown and you have to find out the unknown before you can know it. That seems perhaps trivial, but it's really rather fundamental. You see, there are many things in the ocean that can affect the extent of kelp beds - natural things and man-made things - and we're trying to establish ways of distinguishing between these. In many of these outfall areas, we're faced with an after situation and we have no idea of the "before" situation - or only a crude idea of what the "before" situation looked like, and that makes the analysis just that much more difficult. As I've indicated here, the turbidity angle right now looks very promising and, in order to evaluate this, just as an example the best way to do it is probably to put light-measuring devices such as photocells in outfall areas and put them in a number of normal areas because you get considerable variation even within normal areas. You have to take a large sample and compare the two. If your outfall areas do prove to be much more turbid, we now know the rate of photosynthesis and the rate of growth of kelp we can get an estimate of the idea - just how much loss of kelp tissue there is - loss of productivity - but we can estimate just about how much the loss has been due to the increased turbidity. We have to gather quite a bit of data first over quite a period of time.

ASSEMBLYWOMAN DAVIS: So you actually feel that the additional three-year period is what you need for a compared analysis of these factors that you are going to be looking for.

DR. NORTH: That's right, and other ones that may turn up, too.

ASSEMBLYMAN DOYLE: Dr. North, you mentioned you're getting \$20,000 a year from the Water Control Board. How much are you getting from Fish and Game?

DR. NORTH: The Fish and Game program currently is a \$200,000 proposed program spread over five years. The first year was \$30,000, the next three years are financed at \$50,000 each, and the last year is \$20,000. As of yesterday, we started our third year.

ASSEMBLYMAN DOYLE: \$50,000?

DR. NORTH: Yes.

ASSEMBLYMAN DOYLE: Then you'll have about \$70,000 this year from the State Water Pollution Control Board and Fish and Game.

DR. NORTH: That is correct.

ASSEMBLYMAN DOYLE: Is that a sufficient amount of money to do the job you want to do or you are trying to do?

DR. NORTH: At the present time, yes.

ASSEMBLYMAN DOYLE: If you had twice the money, could you do the job in a year and a half as Mrs. Davis was asking, instead of three years?

DR. NORTH: I don't think so, no. As I've indicated in my testimony, we're just beginning to learn how to measure some of these things and it seems to me that the bottleneck in the whole thing is getting bright ideas - getting out there and looking at the environment day after day and pretty soon you begin to suddenly see something that nobody has observed before. The bottleneck is really in thinking - it isn't in . . .

ASSEMBLYMAN DOYLE: Personnel? Is the bottleneck in personnel?

DR. NORTH: Well, not so much. You might get twice the number of divers out there, but I don't think you'd get twice the number of ideas.

ASSEMBLYMAN DOYLE: All right. Now, what do you hope to learn? After you complete your study, are you going to be able to tell the people of this state just what happened to the kelp or what might have happened to them and if anyone's at fault as to why they left the particular area? Are you going to have any ideas along those lines?

DR. NORTH: I hope to, yes. I should say, we hope to. That is our aim.

ASSEMBLYMAN DOYLE: All right, thank you.

ASSEMBLYMAN BELOTTI: Are you familiar with the harvesting operations of kelp?

DR. NORTH: Moderately familiar - I've ridden aboard a harvester and observed them.

ASSEMBLYMAN BELOTTI: Is it your impression that they're doing more damage than good by harvesting in the methods that they use?

DR. NORTH: At present they're harvesting according to regulations set up and to the best of their ability. It's to their interest to do the least damage possible since that's their resource. I think we don't have the knowledge yet to be able to

answer that question completely. Right now, I would say that as far as I know and anybody knows, they're doing their best to do the least damage to the beds as possible and still gather in their product.

ASSEMBLYMAN BELOTTI: But within three years with the research that you're doing now, you could very well be in a position to shed some more light on that phase of it also.

DR. NORTH: I feel fairly confident that we will be, yes.

ASSEMBLYMAN BELOTTI: Do you think that the methods of harvesting now are detrimental to the fish life?

DR. NORTH: My opinion at the present time is that they are not. However, I should add data at the present time are quite meager and I should also add it's my feeling that in future years the situation is going to get much worse. We're going to have a great deal more pressure from industry, from our population for the use of marine resources, and by marine resources I include use of the ocean as a diluting material for our sewage and I feel that this study now is going to be of immense value in the future in providing enough for everybody along our southern California coastline.

ASSEMBLYMAN BELOTTI: Are any of the harvesting operations conducted in the outfall areas?

DR. NORTH: There are harvesting operations conducted in the Point Loma area, what's left of the extensive bed there. It's a bed that's possibly ten miles long, and it was arbitrarily divided into two sections. The section that's nearest the entrance to San Diego harbor has deteriorated to almost nothing since 1950. There has been no harvesting there since 1950. In the other section of the Point Loma bed, there has been a continual harvest, and it has been about constant. In the beds in the Los Angeles region, beds 11, 12, 13 and 14, the last harvest was in bed 14 in 1954 - that was just a trifle. I'm not allowed to reveal tonnage figures - they're confidential, but for the most part there has been almost no harvest in those beds since 1948.

ASSEMBLYMAN BELOTTI: These figures are increasing, though, rather than decreasing, are they not?

DR. NORTH: That's true. The overall tonnage for the state has increased about 50 percent in the last ten years.

ASSEMBLYMAN BELOTTI: Would you say that the increase is due to harvesting kelp in new areas rather than in the areas that are harvested each year?

DR. NORTH: That is correct. And a factor that we haven't

taken into consideration is the fact that the kelp companies are now harvesting off Baja, California, and the tonnages gotten there are not included in the Department of Fish and Game statistics.

ASSEMBLYMAN BELOTTI: In the course of your studies, do you get the kind of cooperation that you'd like to get from industry as well as the Pollution Board?

DR. NORTH: I have received wonderful cooperation from everybody. I have absolutely no complaints in that respect.

ASSEMBLYMAN DOYLE: Dr. North, why is the tonnage kept a secret or confidential? Are these private firms making the catch?

DR. NORTH: Yes. They're private firms harvesting. As I understand it, there's a state law that - like the engineers yesterday, I'm no lawyer - but all I know is that I was told that the figures were confidential when they were given to me, because of a state law that requires that anything that revealed a firm's business had to be kept confidential.

ASSEMBLYMAN DOYLE: Well, we'll get that question cleared away a little later. You have no lawyers up here this morning, so you can relax. But I do want you to know that if we're supposed to help you and others concerned work out the problems, we certainly don't want any information withheld from the committee and that's the only reason I brought it up.

CHAIRMAN MEYERS: Thank you for being with us, Dr. North. The next person appearing on the agenda is Dr. Conrad Limbaugh from the University of California.

DR. CONRAD LIMBAUGH: I am Dr. Conrad Limbaugh, University of California. This has to do with the biological observations near ocean outfalls.

The plant and animal communities are affected in areas surrounding some outfalls. The specific agents or processes causing these effects are not known. Generally speaking, many economically important organisms seem to be detrimentally affected.

In areas where adverse effects have been observed, it is the plant communities and the associated organisms which suffer. Plants are reduced in numbers or entirely absent. Consequently, the dependent organisms are also reduced or entirely absent.

Certain organisms live very well in the areas surrounding outfalls and are found there in greater numbers than they are found elsewhere. Primary among these are the detrital and plankton feeders, including mussels, sea fans, various worms, and sea anemonies. Of secondary importance are certain predators and scavengers which are able to subsist on the detrital and plankton

feeders; among these are various star fishes, crabs, and sea urchins. Unfortunately, none of these organisms are recognized as significantly important economically.

The outfall areas observed were quite different biologically. These differences are related to the types of bottom, the oceanographic climate, depth and many other factors. In addition, the quality and quantity of effluent discharged into each area is quite different. Whites' Point, the most intensively studied area, shows the greatest change and deviation from what one would normally expect to find.

At Whites' Point, the kelp beds have disappeared. The beds have continued to disappear at greater distances both east and west of the outfall. The obviously affected area ranges from Cabrillo Beach to Long Point. Some small patches of giant kelp still exist inshore at Portuguese Bend and at several places west of there.

Other subsurface plants are adversely affected. Even the tide pool plants are missing or reduced in number. The communities of animals associated with each plant community are also absent or reduced in numbers. It is important to note that most of the economically important nearshore animals are closely associated with bottom plant communities.

At the Hyperion outfall in Santa Monica Bay, no noticeable detrimental effects were noted during a short-term diving study. The kelp beds, however, seem to be thinner at Rocky Point and at Malibu, according to some local citizens. Some old-timers claim that some small kelp beds that existed off Santa Monica have disappeared. They attribute the disappearance to sand fill along the beaches.

At the Orange County outfall west of Newport Beach, members of the Geological Diving Consultants report a large and healthy bottom fish population.

Off Point Loma, just outside San Diego Bay where effluent is dumped directly into the bay, the kelp beds have thinned considerably.

Near the Tiajuana outfall, 3 square miles of kelp beds, indicated on old maps, have disappeared. Kelp beds at the Coronados Island have thinned considerably during the past few years. During a recent flight along the Mexican coast, no kelp was observed for many miles below the Tiajuana outfall, although suitable substrate was evident. Possibly the combined effects of the San Diego and Tiajuana effluents are responsible for these conditions.

In general, the effluents directly or indirectly alter the biological conditions in the areas surrounding the outfall termini. In most cases, the effects seem detrimental to marine resources. In at least one case, these effects are evident along several miles of coast.

ASSEMBLYMAN BELOTTI: In these areas where they're thinning, is there any commercial harvesting operation?

DR. LIMBAUGH: There has been in the past, and I would say that in the areas so obviously affected that I have mentioned them here, it's economically impossible to get a yield of kelp.

ASSEMBLYMAN DON ALLEN: Mr. Limbaugh, the question was asked a few moments ago about the time and the length of these studies. I think it would be well for you, as one who walks the bottom of this ocean out here, to tell these committee members the difficulties that you encounter and the time consumed. It seems that some of them are wondering at the length of time, but nothing was described about the mechanics involved. To start off with this question, most of your work is done with skin diving and aqualung operations, isn't that true?

DR. LIMBAUGH: Well, not exactly. We use it as a tool, but a great deal of the work is done in the library and a great deal in laboratories, and a lot of hard thinking goes in between. Actually, the dives made may be anywhere from five minutes to two hours long, or maybe we will put in as much as three or four hours in one day, but nevertheless a great deal of the information is gleaned by diving. This is only a recent tool, and this is the reason it makes it so difficult to predict how long it will take you and how much manpower is needed on a job beforehand. My personal opinion is that, although a program of the type that Dr. North is working on wouldn't, by doubling the amount of money, cut the time in half - it would certainly shorten the time involved in finding out the answers.

ASSEMBLYMAN DON ALLEN: However, there are certain observations that can only be made from time to time that are time-consuming underwater that you go out and see the phenomena one day and the next day it's entirely different. Isn't that right?

DR. LIMBAUGH: That's true. Most of you are probably familiar with the large fish catches that appeared last year. It was an oceanographic condition. The water temperature rose, even the tide was up six inches higher than the predicted tide and it was the highest water temperature that we had had in 30 years. These effects sometimes mask or at least blind us and confuse us in the analysis of the man-made conditions which are continually changing. They are two dynamic processes going on at the same time that are very complex and they make it very difficult for you to make predictions. We are in a very, very primitive state in the research, and I think this is partly due to the fact that a few years back we didn't have the tools to do it with and now that we have the tools we at Scripps are restricted in space. We can't even hire new investigators when we have money to hire them, and these things slow us down.

ASSEMBLYMAN DON ALLEN: Those are some of your factors. Now

there are one or two other interesting questions I think might be asked of you. As many of the members here on Fish and Game know that you completed a scholarship or a \$6,000 survey of kelp, and I believe that you testified once before and also contained in your report the proper harvesting of kelp appears to add to the healthy growth of a kelp bed, isn't that right?

DR. LIMBAUGH: Well, yes, I believe that from the information that I had, and I still believe that it's valid, that the kelp beds become thicker. Now whether or not this is important to fishes, I'm not so sure anymore; but at least from the experiment that we ran where we left the bed unharvested at La Jolla - a portion of a bed, I might add - for a number of years and the other part was harvested regularly, the part that was unharvested fell to pieces. The bed became very thin in a short period of time, and the other bed remained very thick and the line where the harvesting was evident was very sharp. It was very, very striking from the air.

ASSEMBLYMAN DON ALLEN: In other words, like any other product that's properly harvested and properly cared for, it does have a result - a method of coming back, isn't that true, because of the penetration of the sunlight and the other elements that the kelp requires so much of.

DR. LIMBAUGH: Well, I think you're generalizing a little - some of the things that we have harvested like the passenger pigeons will never come back, but the ocean is a little different than the land plants in the fact that the light penetration to the bottom is a lot less than that near the surface, where in a forest the light may be reduced somewhat to the bottom, but the intensity is not nearly as great as that reduced to the bottom in a kelp bed, and recent work done by Dr. Clendenning at the Scripps Institute of Oceanography, and I believe Dr. Sargent, Naval Electronics Laboratory, in working in conjunction with the Scripps Institute of Oceanography, has indicated that the highest productivity is in the surface canopy.

ASSEMBLYMAN DOYLE: I'd like to get back to pollution - I think that's what we're supposed to be talking about, and Mr. Limbaugh has stated in his statement that he feels perhaps that where we've had these outfalls in these various areas it has affected the kelp beds. Do you feel that's why they move away and why they go to some other spot?

DR. LIMBAUGH: Well, if you'd like, I'll go over some of the evidence. First of all, they used to harvest kelp in these beds as Dr. North mentioned. They can no longer harvest kelp there. They haven't had this problem with other beds away from outfalls. The kelp has disappeared starting in the area of the outfall and moving progressively away. In the case of Whites Point, it was obvious that it was disappearing in both directions and is continuing to disappear.

ASSEMBLYMAN DOYLE: Your answer is yes, then, that you do feel that that is a factor. Right?

DR. LIMBAUGH: I believe that the effluents from the outfalls do affect the plant communities, including the giant kelp.

ASSEMBLYMAN LINDSAY: Mr. Limbaugh, is there any evidence that there has been a deposit of any material in this area along the bottom or on the rocks where the kelp had its footing?

DR. LIMBAUGH: There's an increased amount of organic material in the bottom sediments. However, there are no piles of sludge at the outfalls, as I think an engineer might define it, because of the leveling action of the waves and the spreading by currents; but, we're just subjectively talking here, my feeling is that it's probably not due to a deposit of material over the rocks, although it might be a chemical deposit there that keeps the young plants from growing, but it is my feeling that there are more promising leads to study, such as turbidity which Dr. North has mentioned.

ASSEMBLYMAN LINDSAY: We have had some indication in times past before the committee that such things as the extensive use of detergents now going through the sewer systems may be adversely affecting our plant and animal life in the streams. Now it would seem to me that one of the things that could interest you would be the very careful sampling of microscopic layers, you might say, of deposits chemically of some of the chemicals we are now using - washing and things like this - that may cause a problem on the rocks themselves to keep the new plants from ever becoming established. But you to date have found no indication of this?

DR. LIMBAUGH: Well, yes, I think the latter is probably more correct - this doesn't look like as promising a lead as some of the other factors, although it is certainly being considered; but Dr. Wheeler North's funds for studying this problem as he mentioned are just sufficient to keep two investigators going. It's a pretty big problem with just two investigators.

ASSEMBLYMAN BELOTTI: Mr. Limbaugh, you stated before the Fish and Game Committee about a year ago that in the outfall areas you have noted an increase in fish life activity.

DR. LIMBAUGH: I think that if I said that I made an error or you may have misinterpreted what I said. There was one species of fish that seemed more abundant towards the outfall on one particular dive. We also noted that there were several specimens of the same fish dead on the bottom - recently dead. Now this is rather unusual to find dead fish lying on the bottom. This is bocaccio - one of the rock cod group - seemed pretty abundant. Fish and Game did some fishing outside of that area and did have a pretty good catch, I understand. And the Geological Diving Consultants in doing some geological work along the Orange County

coast were diving along the Orange County outfall and they reported a large and healthy fish population. But I would say that no less than 100 species of fishes are reduced in number or entirely absent in the area surrounding the outfall that would normally have been there.

ASSEMBLYMAN BELOTTI: Nothing has been observed since during the interim - since the time that I mentioned?

DR. LIMBAUGH: Yes, I've dived with Wheeler North at the Whites Point area and to me the conditions are not as favorable as they were the last time I dived there and the kelp beds have disappeared to a greater distance.

ASSEMBLYMAN DON ALLEN: On our famed horseshoe kelp right outside of Long Beach harbor, where we used to have a good stand, to what extent do the abrasives from the flood control play a part in the killing of that kelp?

DR. LIMBAUGH: I have no idea. I remember the horseshoe kelp as a boy in that area, but I have no idea what killed that kelp or what destroyed the bed in that area. It seemed to me there was at that time an extensive bed along the Huntington Beach area, too, that seems to be gone now.

CHAIRMAN MEYERS: I note, Mr. Limbaugh, in your presentation you make reference to the Tiajuana outfall and three square miles of kelp beds. Then you say, "although suitable substrate was evident." Would you care to develop that, please.

DR. LIMBAUGH: Well, in the southern portion of the kelp beds, they require a rocky substrate for the most part. There are small patches, like off the San Clemente area in which the kelp is able to grow on a sand bottom. There are large areas just north of Santa Barbara and in the Santa Barbara area where the kelp can grow on a soft sediment bottom. But in general in the southern California area it requires a rocky bottom and, in depths of 40 to 50 feet in the rest of southern California where you have a rocky bottom, you have some evidence of the giant kelp.

CHAIRMAN MEYERS: When you speak of the Tiajuana outfall, are you making reference to the international outfall sewer problem as it was presented to us by Mr. O'Leary, the Executive Officer of the San Diego Regional Water Pollution Control Board?

DR. LIMBAUGH: Well, not in reference to the problem that he talked about exactly, but it's the same outfall.

CHAIRMAN MEYERS: Then, in the closing sentence of your presentation, you state in at least one case these effects are evident along several miles of the coast. What particular areas are you speaking of?

DR. LIMBAUGH: I was speaking of the Whites Point area in which it is very obvious that the kelp beds have receded in both directions from the outfall terminus and the kelp is gone for several miles in each direction.

ASSEMBLYWOMAN DAVIS: Going back to the question that I originally asked Dr. North relative to the time involved in these studies. May I, for clarification purpose, state that I am very interested in this matter and also the time that is consumed in some of these reports, and that is not being disrespectful to the people that are making them, but I know I for one have had to include within my office an additional filing cabinet in order to file all of these reports that are written in. Now I sometimes wonder how many years, and if it is essential for the time it takes to actually complete a report because of the necessity and the urgency of the problem. You made the statement relative to a question by Assemblyman Doyle relative to the financial factor that you feel which was somewhat different than Dr. North's - what if you did have additional financial ability there that the time would be shortened - the three-year period. Do you mean by that that you would engage an additional staff?

DR. LIMBAUGH: Well, I felt that, if additional money and space were available, you could produce more towards finding out the answers. I agree that some of these things have to be long-term; for instance, if you were studying the rainfall of southern California, you wouldn't get much of a clue by taking one year's rainfall.

ASSEMBLYWOMAN DAVIS: That's true.

DR. LIMBAUGH: So it is necessary. But I think that by putting more people in the field with more ideas, we won't get twice the work; but you will speed it up.

ASSEMBLYWOMAN DAVIS: Well, actually your problem here is space before you could actually engage additional staff.

DR. LIMBAUGH: I think that's the big problem at our institution now.

CHAIRMAN MEYERS: You stated in your presentation during a recent flight along the Mexican Coast no kelp was observed for many miles below the Tiajuana outfall although suitable substrates were evident. Possibly, the combined effects of the San Diego and Tiajuana effluents are responsible for these conditions. You're speaking of the international outfall sewer problem?

DR. LIMBAUGH: Yes, I think that I was talking about the effluents from the San Diego Bay and the outfall at the Tiajuana border, and I think that possibly - now this is only a possibility - that the combined effects have affected the kelp below the Mexican border.

CHAIRMAN MEYERS: Are there any groups studying this situation in Mexico comparable to our university here?

DR. LIMBAUGH: No, the Mexicans are not making any study on the kelp that I know about.

CHAIRMAN MEYERS: Have you had any conferences with any of their . . .

DR. LIMBAUGH: No, actually, this is not my problem.

CHAIRMAN MEYERS: I see, well it's just a point for my own information.

Thank you, Mr. Limbaugh. I am advised that Colonel Newton of the U. S. Army Engineers has arrived so at this time I would like to ask Colonel Newton to come forward.

COLONEL C. T. NEWTON: I am the District Engineer of the U. S. Army Engineer District, Los Angeles.

I am accompanied today by Mr. Clyde Holcraft, who is in charge of the permit office that issues permits for piers, bridges, navigational instruments, etc. Upon the completion of my prepared statement Mr. Holcraft and I will be prepared to answer any questions that you may have, or if at that time we don't have immediately available the answers we will jot them down and make them available to you at a later date.

Water pollution has been recognized by the Federal Government as a problem affecting the general public welfare; the Congress has enacted various laws for its control or abatement on a scope considered to be beyond the capabilities or authority of state or local governments.

The Secretary of the Army, acting through the Corps of Engineers, is charged with the administration of Federal laws pertaining to the pollution of navigable waters. One of these laws is general in nature and applies to all kinds of pollution. The other was enacted specifically to deal with the problem of oil pollution.

The first to be discussed is Section 13 of the River and Harbor Act approved by Congress on March 3, 1899. In brief, this section makes it unlawful to throw, discharge, or deposit any refuse material of any kind either into navigable waters or on the banks thereof where it could be washed into navigable waters or their tributaries - there to impede or obstruct navigation. Exceptions are made for flowage from streets and sewers in the liquid state and for operations in connection with the construction of public works or improvement of navigable waters. Also, there is a provision whereby the Secretary of the Army may permit material to be deposited in navigable waters under specified conditions, and in

definite areas, where there could be no injurious effect upon anchorage or navigation.

Penalties for violations of this law are rather severe, and include fines ranging from \$500 to \$2,500, imprisonment for not less than 30 days nor more than a year, suspension or revocation of licenses of ships' personnel, and pecuniary liability for damages that may arise from the unlawful act.

The other Federal anti-pollution law administered by the Corps of Engineers is known as the Oil Pollution Act of 1924. Under that act, it is illegal to discharge or permit the discharge of any kind of oil into coastal navigable waters of the United State - except in case of emergency imperiling life or property, or unavoidable accident, collision or stranding. The penalties for violations are the same as those for violations of the Act of 1899. Here again, provision is made for the Secretary of the Army to permit discharge into navigable waters at times and places where it is apparent that there will be no injury to health, seafood, navigation, or persons and property engaged in commerce.

Both laws provide that other Federal agencies, such as the Coast Guard and Customs Service, shall assist the Secretary of the Army in the administration and enforcement of the law.

Although not covered in the two laws mentioned, pollution also influences the activities of the Corps of Engineers in certain other fields. For example, the construction of remedial beach-erosion facilities cannot be undertaken to protect polluted beaches. In this case, even though there may be no violation of Federal law, it is definitely to the advantage of local interests to control pollution of beaches.

From a perusal of the Federal anti-pollution laws, it would seem that the Federal Government is omnipotent in the matter and that pollution can be controlled by merely calling upon the Government men to do the job. In actual practice, it just doesn't work out quite that way.

Prosecution in Federal court is necessarily costly and time-consuming. When a pollution case is referred to the United States Attorney with a request for Federal prosecution, it must be fully supported by sufficient evidence to prove guilt. This is not to imply that pollution cases are not prosecuted under Federal law in Southern California. There have been Federal prosecutions in the past and there will be in the future but they are definitely time-consuming.

Federal prosecution, however, is quite rare when compared with state and local prosecution. It has been our policy to cooperate to the fullest extent with state and local agencies in the enforcement of anti-pollution laws, and not to recommend Federal prosecution in cases prosecuted under State or local laws, except in most

unusual circumstances. Actually, it has worked out quite well. The threat of Federal prosecution is ever present, and the legal expenses of defending a case in Federal court are frightening. Although the fines might be no more than those levied in local court, the legal expenses of defense could be considerable, to say nothing of the extensive time factor.

Under local prosecution, on the other hand, punishment quickly follows the offense. For that reason, adequate enforcement of State or local laws can be more promptly effective than reliance upon Federal action.

Oil has been the major pollution problem in Southern California. Accidental spills into navigable waters while transferring between ships and shore installations or between ships account for almost all of the reports of pollution incidents reaching my office. Only a very small percentage of the cases are prosecuted by State or local authorities, and fewer still meet the requirements mentioned for Federal prosecution. To a certain extent, oil spills may be considered as self-policing, because failure to clean up a spill would surely result in prosecution on a local or Federal level, or both. On that account, virtually all spills are cleaned up immediately by professional crews in the employ of the violator, and the cost of cleanup probably exceeds any fine that could be expected. Cleanup costs in the Los Angeles-Long Beach Harbor areas have run as high as \$30,000 for a single oil spill.

My office receives an average of about 30 reports of pollution incidents per year, most of them from the U. S. Coast Guard. Although the number of incidents reported each year remains about the same, the number of incidents involving large quantities of oil or incidents demonstrating gross negligence has diminished. Perhaps this may be attributed to a continuing educational campaign by both Federal and local agencies on the seriousness of the oil-pollution problem. The public notice that I have attached to the back of my statement is an example of the type of educational material that has been used in the past. Such a public notice calls attention to the danger, the expense, and the legal hazards of oil pollution. This notice is one that was put out several years ago and was signed jointly by the then District Engineer, the Commander of the Eleventh Coast Guard District, and the local Collector of Customs. (See Exhibit III)

The rapidly expanding growth of recreational boating will very likely result in a pollution problem of a different nature. There is a natural tendency of people on shipboard to get rid of rubbish of any kind by throwing it overboard. The bay or ocean seems big and no harm is seen in casting empty beer cans, paper bags, and similar rubbish over the sides. The problem is similar to the one of rubbish-strewn highways that has received so much attention recently.

It has been estimated that there will be 50,000 pleasure boats between San Diego and Santa Barbara within the foreseeable future. That number of boats, or a much lesser number, for that matter, can create a pollution problem of tremendous proportions unless disposal of refuse is controlled. In my opinion, it can be prevented from becoming a big problem by two steps, if they are taken in time. First, a coordinated continuing educational campaign to create a desire on the part of the boating public to prevent pollution. Second, providing suitable receptacles on shipboard and ashore to receive waste matter that might be thrown overboard simply because there is no other convenient place to put it. Also, large, plainly marked refuse receptacles should be provided on sport-fishing vessels and other craft carrying passengers for hire.

A lot of education, a little prosecution, and suitable facilities to receive oily wastes ashore have resulted in a great improvement in the oil-pollution problem in Southern California during the past twenty years. I am sure that the same measures will have similar results if applied to other aspects of the bay and water-pollution problem.

ASSEMBLYMAN LINDSAY: Colonel, what happens when they're drilling off-shore for oil wells. Do you have jurisdiction over any oil spills or anything that may occur from such operations? Do you have the same control over these as you will have over boats?

COLONEL NEWTON: We have that same regulatory power, yes, sir.

ASSEMBLYMAN SUMNER: Have you found any pollution condition as a result of off-shore drilling? These islands, and so on?

COLONEL NEWTON: Mr. Holcraft, have we?

MR. CLYDE HOLCRAFT: I am employed in the office of the District Engineer of the Los Angeles District under Colonel Newton. I am in the Harbor and Shoreline Section as Chief of the Permits and Statistics Unit. Among my responsibilities are the receiving and analysis of reports of incidents of oil pollution. To answer the specific question in relation to oil pollution emanating from oil structures in the navigable waters of which at the present time we have only one in operation - that is operated by Monterey Oil Company of Seal Beach - no report of any pollution resulting from those operations has come to our attention.

ASSEMBLYMAN SUMNER: Are you familiar with the operation of such similar structures in other parts of the coastal waters of the United States?

MR. HOLCRAFT: Not specifically, no, sir. They have a number of installations in the Gulf and I have no knowledge of the pollution problem caused by those structures in the Gulf of Mexico.

ASSEMBLYMAN SUMNER: Do you have any knowledge if there is a pollution problem caused?

MR. HOLCRAFT: No, sir, I have not. Not direct knowledge.

ASSEMBLYMAN LINDSAY: Mr. Chairman, to add a little more to it - the reason I asked this is that from all the information that we have been able to gather there is no pollution problem. Yet we have pretty violent opposition from some people - some very sincere and interested groups - particularly in the Santa Barbara area - fearing that drilling on the offshore lands of the state there will cause a tremendous oil pollution problem on their beaches and yet all the indications are to the contrary the companies now have sufficient knowledge and sufficient equipment to control this so it just doesn't happen, and I think it's interesting to have in the record the fact that the Army Engineers through their control of navigable waters in this pollution problem also would have control of this problem if it occurred from any drilling. This is a fact, is it not, sir?

MR. HOLCRAFT: Yes, sir, that is a fact.

CHAIRMAN MEYERS: Colonel, in your presentation you mentioned in the second paragraph water pollution has been recognized by the Federal government as a problem affecting the general public welfare, that Congress has enacted various laws towards its control or abatement on a scope considered to be beyond the capabilities or authority of State or local governments." Would you care to elaborate on that point?

COLONEL NEWTON: I believe that my elaboration should state this: That navigable waterways have been considered by the United States Government to be elements of concern and use to the public at large and as such the Federal Government has prime authority for the control of navigable waterways. Thereby the Federal Government does assume some responsibility relative to pollution in those precise navigable waterways. Navigable waterways adjoin to other dockages and facilities that are of local interest as opposed to primarily federal so that I believe that the interpretation should be that wherein the public interest at large is concerned in the navigable waterways per se, there the federal government has jurisdiction. As far as pollution goes, it's pretty hard to determine whether it's in one part or another and since these nuisances such as pollution do have major local concern if and when the local interests can take effective action then the federal government would prefer not to follow through and prosecute.

CHAIRMAN MEYERS: For the information of the members of the committee, would you kindly advise us as to what area your district encompasses - what areas you have charge of?

COLONEL NEWTON: Yes, sir. The Los Angeles District of the Corps of Engineers, U. S. Army, includes the Pacific Coast coastline from the Mexican border about to San Simeon which is what we consider Southern California. It does include jurisdiction over navigable waterways in Southern California, of which there are very few, and also along the Colorado River for its entire length that has been designated as navigable. My comment pertained only to the Corps of Engineers functions relating to navigable waters.

CHAIRMAN MEYERS: Colonel, there was another paragraph on page 2 - although not covered too well, it's mentioned - pollution also influences the activity of the Corps of Engineers in certain other fields. For example, the construction of remedial beach erosion facilities cannot be undertaken to protect pollution beaches. In this case, even though there may be no violation of federal law, it is definitely to the advantage of local interests to control pollution of beaches. Would I conclude from this statement that even though there is no violation but yet erosion exists that the federal government will not go in?

COLONEL NEWTON: Well, the explanation of that is this: Our control and work on beach erosion does not have the same statutory background as it does for improvements of navigable waterways or for flood control. So we only can do beach erosion corrective work when specifically directed by the Congress and the Congress includes by precedent the requirement that there be a major portion of local participation in the improvement or rectification of any beach erosion problem. By practice we can say that, if the local people are not interested enough in their own beach to correct or control pollution, then why should Uncle Sam come in and try to put money into protecting that particular beach?

CHAIRMAN MEYERS: You mention that oil has been the major pollution problem in Southern California - accidental spills in the navigable waters while transferring between ships and shore installations or between ships account for most all the reports of pollution incidents received by your office. Now yesterday we had Mr. Finnie, who is the Assistant to the President of the Pacific American Steamship Association, appear before our committee, and he was citing facts and figures. He made a good presentation, but most of the information that he presented was from the Bay area if my memory serves me correctly. The report indicates here that such cases have been very few. I am speaking now of the Bay area and that there have been violations of ships which are not flying under the American flag. So I have a two-pointed question here (1) has there been much of a problem in this regard, and secondly, how does the Corps of Engineers enter into the situation as far as ships which are not flying the American flag when guilty of polluting in our waters?

COLONEL NEWTON: Well, to answer the first question, the number of cases of pollution by oil spillage or otherwise that have been reported to us are very modest. Practically - those are the only cases that ever do get reported. I think other cases of pollution that probably do occur are handled by the Port Authorities and so forth and are of such minor nature that they are not even reported to us. So that was the basis of our statement that as far as we are concerned anyway, the oil spillage is the primary pollution problem.

As to our jurisdiction over oil spillage by ships flying a foreign flag, as long as those ships are within the territorial waters of the United States by federal law, I believe that we have the same jurisdiction over them as we have over our own and I believe there's some agency of International Maritime Association to get redress in case they are not brought to term promptly while in the harbor area.

MR. HOLCRAFT: There's a major difference in the oil pollution problem between the harbors of Los Angeles and Long Beach and the harbors in the San Francisco Bay area and that stems from the availability of bunker oil at very reasonable prices in the Los Angeles harbor area and it's the first port of call northbound from the Panama Canal for many ships of both foreign and domestic registry. So that the volume of bunkers handled in the Los Angeles - Long Beach Harbors - although I have no figures on it - would seem to be much greater than the volume handled in the Bay area. Now there's approximately 30 reports that we receive each year, most of them having to do with the spill of oil either while handling bunkers or tankers. We handle a great many more tank vessels in the southern harbors than is the case up north. And very few of those incidents reported to us are of any consequence. I've had one recently that was 10 or 15 gallons - the largest in the past several months that I can remember was about 14 barrels which was a sizeable spill. But in practically all instances the oil is cleaned up immediately and that achieves the desired result.

ASSEMBLYWOMAN DAVIS: Colonel, I was very interested in two of your paragraphs on page 2 of your presentation. You stated that federal prosecution is quite rare and that you depend and cooperate with the state and local agencies in the enforcement of anti-pollution laws, and you very seldom recommend federal action on these cases. You also state that the threat of federal action is very costly and so on. Now do you personally feel that the state and local regional boards are doing an adequate job as far as the pollution problem in the State of California? If you don't care to answer that, it isn't mandatory, but since you make the statements in these two particular paragraphs I'm vitally interested why you have somewhat depended or are depending on that enforcement.

COLONEL NEWTON: Well, I'll put it this way. In the immediate area in which we have found we have concern, which is principally around the Long Beach-Los Angeles area because it's such a busy

area, it has been our observation that the local agencies have taken quick and direct action to the degree that within the matter of hours the owners have been notified by some of the local agencies; whereas, to get a report to us and for us to process the report back through a district attorney and finally get the notice served on the owners, even in itself is a long process, even though we are a regulatory agency of the federal government. We do not have any police powers. So the only way that we can bring something to the attention of a wrong doer is through the courts. We would request prosecution and the court would then serve an appropriate legal paper on the defendants.

ASSEMBLYWOMAN DAVIS: Do you suppose, though, and do you feel that the offender actually after this situation is corrected, do they offend again? My question here is this: If they were actually prosecuted under the federal law perhaps once or twice - due to the expense involved - perhaps maybe they would be a little bit more cautious in offending again. That's my interest here pertaining to your statement in these two particular paragraphs. Do you feel that would be the case, or not?

COLONEL NEWTON: Well, I believe that the intent of my statement or the entire statement was to indicate that dependence upon federal prosecution is resorted to only occasionally. We have prosecuted through the federal courts in the past, and I am sure we will do it in the future, and it has been the history of the expense of those prosecutions that the people in the shipping industries and the people around the port areas are familiar with that I'm sure has some effect in maintaining some orderliness in the pollution areas.

ASSEMBLYWOMAN DAVIS: Well, that was my point. You made a statement here, except in unusual circumstances you prosecute. Could you stipulate one particular circumstance under which you would actually enforce the federal law?

COLONEL NEWTON: A good example would be the contrary of what we have pointed out here as examples of current practices. The oil companies and others that occasionally do have accidental spills of oil are very prompt in putting out their own crews to clean up, at considerable expense to themselves. If, however, they did not, at some time, why then we definitely would prosecute through the federal government regardless of who the malfactor was.

CHAIRMAN MEYERS: Thank you, Colonel Newton.

We're going to have a change on the agenda. We are going to call the County Sanitation Districts of Los Angeles County - Mr. Rawn.

MR. A. M. RAWN: I am appearing at this time as the Chief Engineer and General Manager of the Los Angeles County Sanitation

Districts concerned with the management and disposal of sewerage of that area. Mr. Chairman, may I thank you very much for this consideration. I call your attention to the fact that Mr. Bowerman, a member of our staff - Division Engineer - is here and will stay here all afternoon if you have further questions to ask of us or wish further information. Mr. Bowerman is Division Engineer - he has done a great deal of research up in the White Point area - he's an amateur skin diver - he and one other of our engineers have dived on several occasions.

I'll read what I have to say. May I also call your attention to the map which appears after the first four typewritten pages and which indicates the extent of the Sanitation Districts in Los Angeles County and on the reverse side of which is the essential data which indicates the population served - which is nearly 3,000,000. There are 55 of the 60-odd incorporated cities in the county served by the sanitation districts with a population of around 3,000,000 and an assessed valuation of about \$3,000,000,000. This is addressed to you, Mr. Chairman.

Since October 1937 the County Sanitation Districts of Los Angeles County have discharged treated sewage into the ocean at a point offshore from the Palos Verdes Peninsula. Construction of an 8-ft. diameter tunnel some six miles under the Palos Verdes Hills provided access to that rocky coastline, where a 5-ft. diameter ocean outfall pipe was built to convey sewage effluent along the ocean's floor to a point 5000 feet distant from the shoreline to discharge at a depth of about 110 feet below the surface of the ocean. Commencing at a rate of about 20 million gallons daily in 1937, the flow increased until in 1945 an additional ocean outfall pipeline was placed paralleling the first pipe, but having an inner diameter of 6 feet. It, too, terminated 5000 feet from shore in 110 feet of water.

Constantly increasing flows necessitated modification of the ocean outfall construction so as to increase the efficiency of dispersal and this was done by lengthening the 6-foot diameter pipe another 1800 feet in 1953 and converting the terminal points of the two outfalls into diffusion structures. In 1956 the Districts completed a third ocean outfall, one having an inner diameter of 7-1/2 feet, which reaches 8000+ feet from shore where it terminates at a depth of 210 feet.

Early in 1958 a second tunnel, under the hills, 12 feet in diameter, was completed, paralleling the original 8-ft. tunnel and reaching from the sewage treatment plant to the coastline at Whites Point; together the two tunnels furnish hydraulic capacity for about 500 million gallons daily.

To visualize the expansion of the Sanitation Districts' sewage treatment and disposal facilities in their proper perspective, one has to realize the phenomenal growth of the

Sanitation Districts' system, in terms of population increase, in the creation of new districts, and the annexing of additional areas to existing Sanitation Districts. In 1937 when treated effluent first reached the Pacific Ocean from the Whites Point outfall system, the quantity of sewage discharged was about 20 million gallons daily; in 1947, following just one decade of growth, the flow had tripled and was at the level of about 60 million gallons daily; from 1947 to 1957 the quantity of sewage effluent again more than tripled, increasing to about 200 million gallons daily. In summary, the Sanitation Districts' sewage treatment plant and appurtenant facilities have been expanded during the past 20 years at such a rate that today they are currently collecting and disposing of more than eleven times the amount of sewage handled at the beginning of that 20-year period.

It is to be anticipated that such a rapid and intensive period of growth would encompass many changes and improvements in design, construction and operation. From 1937 until about 1952 the Whites Point outfall system operated with marked success. About 1952 it became apparent to the Sanitation Districts' engineers that some measure of improvement must needs be made in the method of disposal to the ocean since concentrations of sewage bacteria began to reach and, in a few cases, exceed safe criteria established by the California State Board of Health, indicating questionable protection of public health. Upon recognition of these circumstances, which became evident to the Districts through its continuous shore and offshore bacterial survey program, the Districts undertook the development of an improved system for diffusing sewage effluent in sea water, resulting in the extension in 1953 of the then 72-inch ocean outfall pipe by another 1500 feet, and the placing thereon of a three-legged, wye-shaped diffuser which had many small ports through which the sewage effluent jetted into the surrounding ocean waters.

The rapid mingling of the sewage effluent with sea water so effectively eliminated the problems attendant upon the former method of disposing of the sewage in a single large stream, that the 60-inch diameter ocean outfall was converted into a diffusion structure by capping the end of the pipe and drilling ports into the walls of the existing outfall in the last hundred feet. The 7-1/2 foot diameter ocean outfall placed in service in the latter part of 1956 was designed with what is believed to be the most efficient dispersal system yet built for the disposal of sewage effluent into sea water; it comprises two 5-foot diameter legs, each 1200 feet long, and having but one small port (about 7" in diameter) in each 24-foot length of pipe. The increased hydraulic capacity afforded by the longer, deeper outfall enabled the removal from service of the shortest outfall, thereby minimizing further the possibility that sewage effluent might reach the shoreline in sufficient concentration to cause questionable levels of bacterial activity.

The salutary effect of the improved outfall system has enabled the Sanitation Districts to increase the discharge of primarily treated effluent from a level of about 145 million gallons per day in 1952 to the present level of about 225 mgd, a 55% increase in flow, within the pollution control limits prescribed by the responsible authorities for all conditions excepting occasional bacterial contamination. At present the Sanitation Districts are again undertaking and just now completing those steps considered necessary to alleviate existing unfavorable conditions and any others which might develop from further increase in flow; and planning is directed along the following lines:

1. The installation of massive chlorination equipment at the Districts' Joint Disposal Plant to provide positive control of sewage bacteria at such times this control proves necessary.
2. Improved sewage treatment facilities, including newer and more effective skimming and screening devices.
3. Consideration of the design and construction of longer, deeper outfalls to effect more efficient dispersal of sewage at greater distances from shore.
4. The conservation of digested sewage sludge through improved methods of drying and processing. The Sanitation Districts have recently negotiated a firm 10-year contract for the sale of all the digested sewage sludge from the Districts' Joint Disposal Plant for use as a fertilizer or soil amendment. An efficient sludge dewatering system is now being developed by the Districts to insure year-around operation without regard for the wet-weather difficulties that have hampered the sludge drying process in years past. The improved system for drying digested sludge will reduce the need for ocean disposal of sewage sludge to a minimum, perhaps even eliminating entirely the need to waste digested sewage sludge.

It might be of interest to note that the topography offshore from the Palos Verdes Peninsula is such that at a distance of only 3-1/2 miles from the shoreline the depth to the bottom is about 2000 feet. While such great depths pose perplexing and unique problems in construction, they also afford possibilities for the disposal of sewage effluent and sewage sludge under such advantageous circumstances as to insure great confidence in the ability of such a system to dispose of the sewage from the 55 cities and extensive unincorporated areas in the Los Angeles County Sanitation Districts in full harmony with the manifold requirements for protection of the public health and welfare.

A word of comment about what the future portends. Inasmuch as the last few paragraphs have outlined a history of constantly increasing sewage flows, presenting ever more complex problems of safe sewage disposal, it might be presumed that the increasing

sewage flows at Whites Point will eventually be such that the ocean waters will not have capacity to properly receive and treat the effluent. That conclusion appears valid; studies conducted by the Sanitation Districts' engineers do indicate that such a limit does exist, even though it is perhaps well into the future. In a very real sense, however, the need to utilize the ocean for sewage disposal to that degree will probably never materialize. The apparent contradiction in such a statement in the light of the past history of Los Angeles County demands some slight explanation.

The reason that the ocean's capacity need not be taxed to the ultimate is that there exists a greater need for conservation of waste water through reclamation and replenishment of ground water basins; such replenishment will demand the recovery and utilization of much of the water that now reaches the ocean as sewage. Present indications are that more than half of the water wasting to the Pacific Ocean from Los Angeles County can be treated and returned to ground water storage, thereby accomplishing the dual purposes of relieving, in some measure, the water shortage and at the same time lessening the demand upon the ocean for final disposal of sewage effluent. This is not an overstatement. The Sanitation Districts are presently reclaiming about 4 million gallons daily of water at a sewage treatment plant near Pomona and another million gallons daily at Azusa. The construction of similar water reclamation plants in the upper valleys of the Los Angeles coastal plain will ultimately reduce the sewage treatment and disposal load on plants discharging to the ocean to the point where the latter will largely handle industrial flows and other waste waters which are unsuited for reclamation and return to the ground water. As incongruous as it may seem, it is predicted that future discharges at Whites Point will level off and eventually show significant reductions in the quantity of sewage effluent discharged through the outfall system.

That closes the written statement, Mr. Chairman, and I have also attached to this document a copy of a paper which I was requested to and did present to the Los Angeles Chamber of Commerce Water and Power Conference held May 27, 1958, which describes very briefly an engineering plan for doing what I mentioned in the last paragraph of my statement. (See Exhibit IV)

ASSEMBLYMAN LINDSAY: Colonel, this is going to entail, though, the paralleling and separation of waters entering into your system before you can actually control and use this water. In other words, you're going to have to have separate systems for your industrial waste that cannot be reclaimed, are you not?

MR. RAWN: We practically have that now, Mr. Lindsay, in parallel lines so that it can be separated with a minimum of cost.

CHAIRMAN MEYERS: Thank you, Colonel Rawn.

MR. RAWN: Mr. Frank Bowerman is going to remain here this afternoon if you wish to ask him any questions.

CHAIRMAN MEYERS: Getting on with the agenda, we will now hear from Assemblyman Don Anderson, speaking for the Izaak Walton League.

ASSEMBLYMAN DON ANDERSON: I am the Assemblyman from the 45th District and speaking this morning as the State Chairman on Water Pollution for the California Division of the Izaak Walton League.

At a meeting of the Board of Directors of the League in January a policy statement was made up by the Board of Directors on water pollution, a copy of which - the background information - I would like to just file with the secretary of the committee. I'd rather not dwell on this background information because I think probably in the files of your committee you have all of the points of water pollution throughout the state. If you don't have them, I know the Fish and Game Committee, of which I am a member, certainly has plenty of background information on the extent of water pollution in California.

At a meeting of this same board of Directors, however, a month ago, some recommendations that were initially prepared were revised and I would like to issue you some copies here now. These, I think, were also sent out to each member of the committee so you have had prior information on it, and I would like to read these into the record at this particular time.

Recommendations for Amending Dickey Water Pollution Act

1. Declaration of state policy for maintenance of clean waters through the prevention of pollution.
2. Prevention of waste disposal as beneficial use of water when the discharge will be detrimental to public use of water in any manner.
3. Require specific discharge standards for discharges established prior to the enactment of Dickey Act.
4. Issue discharge permits for compliance based on specific methods of treatment requirements.
5. Establish specific spot-check program of monitoring consistent with the type of discharge.
6. Establish positive procedures for immediate legal enforcement of non-compliance violations of the discharge requirements.
7. Standardize enforcement authority within one effective agency of government.

8. Provide for fish and game and other recreational agencies on each regional water pollution control board.
9. Provide for adequate technical staff and budget on the state level to perform necessary research for development of treatment methods for the ultimate eradication of water pollution from all causes.
10. Provide for preemptory legal action wherever and whenever refusal to comply with provisions of the state policy on water purity standards is encountered.

The League and its many members throughout California feel that it is absolutely necessary that the Legislature take another look at water pollution and in the 1959 session strengthen the Dickey Act to provide for the necessary enforcement of water pollution throughout the state. We were very pleased generally to read the recommendations that were prepared by the five ex officio members of the State Water Pollution Control Board. The recommendations there generally meet with the recommendations that I have just read to you from the League. I might point out that Number Four here differs slightly with what those recommendations were by the five members of the Board. Number Five that I read to you with respect to the spot-check program of monitoring we feel is probably the heart of the whole control program, and that all discharge requirements certainly should be spot-checked on some regular basis established by the Legislature for operation under the Water Pollution Control Act.

We feel, too, that the Legislature should take a new look at providing sufficient budget for research in the development of treatment methods for all types of discharges. The League will take more than a passing interest in the legislative action on water pollution at the 1959 session.

At the next meeting of the Board of Directors definite plans are going to be prepared to follow through with regards to a legislative program, something I feel the League has been a little bit lax on in years gone by. But we feel that water pollution will be a major project in the California Division of the Izaak Walton League, as it is becoming a major project of all conservation and sportsmen groups in California and that it is time we sat down and worked this out so that we have an effective overall program. One that is enforceable - one that in time will eradicate water pollution from the streams and off-shore areas of California.

ASSEMBLYMAN DOYLE: Don, you outlined some conditions here that the Izaak Walton League would like to have done. Do you have any idea what this would cost the state if we put them into effect and operation?

ASSEMBLYMAN ANDERSON: No, we don't. As a matter of fact, I think it's a matter of study for this committee. The responsibility

lies with the Legislature, but it gets right down to the committee of which you are a member charged with the responsibility of working out these problems.

ASSEMBLYMAN DOYLE: I'm sure we're all interested in pollution. I know industry is here in full force giving their views as to how these laws affect them today and how they will affect them tomorrow. Of course, we have departments here, we have Fish and Game, sportsmen, all concerned, and they're really concerned and seriously concerned. But I think that on any legislation next year that is submitted to the Legislature on the pollution problem, costs and financing will have to be considered. In other words, they will be competing along with many other agencies to get their share of about two and a half billion I understand next time.

ASSEMBLYMAN ANDERSON: There's no doubt about that, and with a tight budget it simply compounds the problem.

CHAIRMAN MEYERS: Thank you, Assemblyman Anderson.

We will proceed with the next person on the agenda, Robert Vile, who will speak for the Ocean Fish Protective Association.

MR. ROBERT VILE: I am President of the Ocean Fish Protective Association. Our main concern at this time is with our surf fish population and the effects that pollution is bringing about on this population.

The discharge of sewage into our coastal waters of this state has created a serious problem to the anglers fishing from our beaches.

Here in Southern California there is a problem of limited access to our beaches by which sportsmen may enjoy surf fishing.

Pollution of our coastal waters is adding to this problem each year. More and more of the public beaches are becoming near the point of quarantine and many to the point that there is fear of using them for fishing. The waters that are free from the discharge of sewage plants are mostly blocked by private homes along the shore, military installations, lands being held for real estate developments, and the ever-increasing practice of industry to build on and near the shores. This leaves only the less desirable sections of the beach for use by the general public. This is where the cities dump their sewage.

This means that each time a section of beach is lost to pollution, anglers have to move on to another beach, further from home and a little more crowded. A man goes fishing to escape the crowded conditions of the city, only to find that he is being forced into a corner for lack of beach to fish.

Southern California's army of surf fishermen have witnessed many of their favorite surf fishing waters turned from highly productive ones to waters giving up poor catches of sport fish and eventually giving up mostly trash fish.

These are the very same waters that are opposite, adjacent to, or nearby a sewage outfall. It is our belief that the careless discharge of sewage into our coastal waters has driven the desirable species of surf fish from the areas affected by the discharge of sewage. This belief is based on observations made over a period of years that disclosed, that while the waters affected by the sewage outfalls stopped producing fish, other waters just out of the range of the polluted waters continued to produce good surf fishing.

We feel that if the waters in these affected areas were cleaned up by proper filtering before they were discharged into the ocean, that the fish would return in time and once again establish a good surf fishery for the residents of our state.

The foods that our surf fish feed on have also been affected by the discharge of sewage into the coastal waters of the state. It is a fact that a concentration of polluted water will kill off the crustaceans along our rocky shores that supply food for the fish. We know that contaminated water affects the clam populations that also supply food for our surf fishes, and we have observed sand crabs in heavily polluted areas where an entire bed had been killed by pollution. I might make a note here that isn't in the report that the sand crab itself is the most vital food of the surf fish. I believe in a recent survey just completed by the Department of Fish and Game it supplies about 90 percent of the food for the surf fish.

In nature there is a law that applies to both the creatures on the land and the fish of the sea. When there is a larger population of game or fish than there is food for, they become stunted, sick and eventually the population is reduced in proportion to the supply of food available.

In this growing state there is an ever-mounting pressure being placed on our fisheries and we cannot afford to lose one fish to pollution, nor can we afford to lose this source of mass recreation.

We would like the committee to be cognizant of the fact that a recent survey by the Department of Fish and Game estimated that there are a quarter of a million anglers surf fishing in this state. This definitely classes this sport as a source of mass recreation.

It is our recommendation that the legislature take the following steps to halt the disgraceful use of our coastal waters and to clean up the waters already affected by the careless discharge of sewage:

- A. Establish the recreational use of our coastal waters as the prime beneficial use of these waters.
- B. Term it a privilege and not a right to discharge sewage into our coastal waters.
- C. Clarify and firmly enforce the responsibility for carrying out the control on pollution.

Mr. Chairman, I would like to state at this time I had an opportunity this morning to look at the report submitted to you by the five directors of the various agencies - the Department of Fish and Game, the Department of Agriculture, the Department of Natural Resources, the Department of Health, and the Director of Water Resources. I would like to state that our organization is very much in support of their recommendations.

ASSEMBLYMAN LINDSAY: Mr. Vile, there's a question that has not been touched on. I don't know if you can answer it or not. Isn't it possible that the introduction of just tremendous quantities of fresh water alone without any sewage pollutant in it, may act as a pollutant itself to sea water? Now, we have just received testimony here of one outfall discharging 200,000,000 gallons a day - this is approximately 600 acre feet of fresh water in one area. The fact is that both the fish life and the aquatic plants that live in sea water may be adversely affected by lowering the concentration of the sea water in that particular concentrated area and, to your knowledge, has there been any work done or any observations made of whether just the large introduction of fresh water is a pollutant itself?

MR. VILE: Well, I'm not a biologist, Mr. Lindsay, but I would offer this. Where the Los Angeles River dumps into Los Angeles harbor it has a good growth of crustaceans on the rocks on the inside and those are definitely affected by large quantities of fresh water during the rainy season. Now those crustaceans are still there - that is not a continuing dumping of fresh water. We also have the same situation in some of the back bays up the coast here a ways around Seal Beach and through there where fresh water flows from some of these flood control projects - they're still there. I imagine a strong concentration of fresh water would definitely kill these things - so other than that, I couldn't give you a frank answer.

ASSEMBLYMAN LINDSAY: Mr. Chairman, when Mr. Vile is through, could we call back Dr. Wheeler North for just a moment?

CHAIRMAN MEYERS: By all means.

ASSEMBLYMAN DOYLE: Mr. Vile, on these outfalls of sewage I see here we're extending them and we're having to have more all the time in these municipalities along our coast. Do you feel that if they're put out say a mile or a mile and a half at a depth

on such as the one we heard here this morning that it would still affect the type of fishing we're talking about?

MR. VILE: Well, this is very controversial. Let's take in Santa Monica Bay - the Hyperion outfall, for instance - they claim regardless of how far they extend or how feasible as to how far they can go with it, that that water will flow eventually back to shore. That was the controversy that was over this new sludge line that they put out there that this line was not going to be far enough from shore to keep this sludge from coming back onto our beaches. And probably you've known from your own experience that something like a person's body for instance, when they drown, they may be taken out with the currents for a time, but eventually they will wind up on the beach. And this is the same situation we have with our sewage. It definitely affects the surf fish because they were in the range where the water is being discharged and they're in the range where the water is coming back to the beach.

ASSEMBLYMAN DOYLE: Well, then you're asking, that the sewage be treated as such so they can dump it overboard and it wouldn't affect the fish any more than if they send it out in a pipe. Is that correct?

MR. VILE: That's right.

ASSEMBLYMAN DOYLE: Take care of it before it's put out in the ocean.

MR. VILE: That's right. I mean, it's not only the effect on our fish but after all, when we go down to the beach to fish ourselves, we'd like to know that when we put our hand in the water or our foot goes in the water that it's clean enough and that it's safe. There have been many occasions that along the beach at Del Rey where the Hyperion dumps that the water has a strong stench to it - has a film, you can see hair and other articles that float in from the sewage.

ASSEMBLYMAN DOYLE: Well, the length of the pipe would have no bearing as far as you're concerned as to correcting the pollution problem.

MR. VILE: No, I definitely feel that the pollution problem in this state has got to be corrected, at the plants themselves, before the water is discharged into our oceans.

CHAIRMAN MEYERS: Mr. Vile, in your presentation, you mentioned that the beaches are coming near to the point of quarantine. Well, haven't there been many occasions where beaches have been quarantined for a period of time and are still quarantined?

MR. VILE: Yes, right at the present time our Doheny State Park which is in Orange County, is closed due to polluted waters. It is definitely quarantined. Now, at Cabrillo Beach, Whites

Point those waters there are unsafe actually for human use, yet they are not posted.

CHAIRMAN MEYERS: They are not posted. Well, it has been called to our attention that occasionally certain sections have been posted yet people are still swimming - unless the enforcement has not been followed through.

MR. VILE: Well, that's one of the serious aspects of this whole thing. Anybody that is aware of some of the conditions that exist along these beaches would not be there, but there are too many people that are not aware of them. You don't see it in the metropolitan papers. Only once in a while you see a paper such as the paper in my home town which has been continually fighting pollution at the Hyperion outfall. It keeps the people abreast of what is happening, but anywhere else it's a dirty subject and let's not print it.

CHAIRMAN MEYERS: Mr. Vile, I'd like to ask this question if I may. Has your association called the facts and conditions to the attention of the proper authorities and, if so, what has been the attitude and effort to correct it?

MR. VILE: Well, apparently the attitude is that the law is not clear enough - whether they use this to hide behind or whether it is a fact - I'm not a lawyer. That has been what we've run up against - it's been a run-around. Perhaps you people are familiar with the legal proceedings that have taken place between the City of Los Angeles, Hermosa and Manhattan Beach - they've been in the courts for a great deal of time now; yet apparently nobody wants to take the responsibility for saying "yes" or "no" and it just appears to me that we have to clarify the law here and establish who is going to enforce it.

CHAIRMAN MEYERS: How long has this situation or condition been existing?

MR. VILE: Which particular situation?

CHAIRMAN MEYERS: In your report you have made reference to the quarantine of beaches, and so forth.

MR. VILE: Well, I might bring this out. The Hyperion outfall was quarantined during the years of the war. There was a very serious condition there and it is my understanding that the only reason they posted it was that the Army had installations in that area and they forced them to post it. Then after that new plant was installed things were cleaned up greatly. In fact we had a very good surf fishing population right after that time, but as the use of that plant became overburdened the conditions became worse again.

CHAIRMAN MEYERS: One more brief question. You have indicated that other sections should be posted on our beaches but this has not been done. Would you care to develop that point a little further?

MR. VILE: Well, I believe, as much as I hate to see it closed - it is a point of access, but Ormand Beach at Oxnard is not safe. They have it posted against bathers - it is actually not safe for people to fish in it, either, any more than they have a right to bathe in it. You can stand on the beach there - you can see the discharge coming out of the water, and it's not far enough from shore to be safe. I don't know what the samples of the water are - they have a very good system set up on the samplings now, but it's not safe enough to swim in and I can't see where it's safe enough to go fishing in. I've also heard a rumor - that's all it is, is a rumor - is the fact that many times at this beach, this water in this area has been below standards and no action has been taken to close the beach.

ASSEMBLYMAN DOYLE: Ventura County, Mr. Vile?

MR. VILE: Yes, Ventura County.

ASSEMBLYMAN DON ALLEN: Well, Mr. Chairman, what Mr. Vile says - there are some bases to it - based on practical experience. There along the Santa Monica Bay at one time there was a very fine place for halibut, especially the inshore fishery - they could generally get their halibut close in off the beaches and as a consequence they have somewhat made their disappearance from there. If we didn't have people out here we'd really have little or no problems, but the problem was simply this: in 1936 the City of Los Angeles started out to revamp its position on the Hyperion treatment plant. Now these beaches were quarantined from about El Segundo to a point south of Santa Monica - or portions of Santa Monica itself - the beaches - for a number of years. The City of Los Angeles was taken to court by the Attorney General's office. Members of the City Council in Los Angeles today are still under the mantle of contempt procedures to do certain things. But I submit to you that you don't have these big outfalls - you don't have these correction plants packaged in cellophane paper ready to put in on a moment's notice. You don't just go up there and spend \$96,000,000 like you would in a dime store. There has been this construction that's taken place. Now I think that we've only had one real serious situation that took place, and that was during that unprecedented seven-inch rain that brought a lot of discomfort and misunderstandings to the beach towns south of us when you just had to release everything. If we didn't, we would have fairly close to \$60,000,000 worth of damage down there. And it did - it was during the heavy rainy season and they just opened up the gates and there she was. There were a lot of grease balls, a lot of solids that were floating along the beach that were found there. It was one of those cases. It would have torn the whole line out. Now those matters are being slowly but surely resolved.

Now somebody testified here yesterday on the delay. In one of the cities, the City Council and the Mayor of Vernon have gone to jail on contempt procedures. For several years Culver City was sort of dragging their feet, but we began to resolve those things. They claim now that this new outfall - I think it will go out about five or six miles more. The unhappy position was in 1922 when they chose that site at the north outfall and the central outfall, they chose probably one of the most shallow portions that they could find to build that outlet there at Hyperion. Now they're going to try and overcome that by extending further out into the bay. The problems of the solids at the extraction plant has been a very expensive situation in this City. I was chairman of the finance committee there, I know. The disposal of your milorganites which to all intents and purposes didn't have the high content of that of Milwaukee and other places, but it stacked up there. We had piles of it stacked around that place. The problem of disposal - it's good for gardens, if you can get it on the gardens - but there's the problem of disposal. We have had a controversy running there since 1922 about the re-use of that water. We find if we pick these waters up and that water travels the length and the tremendous distance that it does through those sewer lines in Los Angeles, it picks up salts, it picks up other contaminants as it goes along. It has really been a problem, and I think that what Mr. Vile is testifying to here is that we're going to begin to see the solution in the next four or five years. But it's going to take at least that much time to whip that situation down there. You have some people here from the City who are working with it every day who will testify a great deal more, but I can concur with him that your rock bass, your halibut, your turbot and most of your other fish have made a disappearance out of the Santa Monica Bay to a great extent and that was at one time one of your finest surf-fishing areas in that area that is really gone - it's gone by the wayside now.

MR. VILE: May I say one thing? It has been my understanding at the time the new Hyperion plant opened that it was operating at capacity when they opened the doors. I don't know whether that is correct, but if that is so, it has taken them certainly a long time to decide to build a plant that is suitable to take care of the residents of Los Angeles County.

ASSEMBLYMAN DOYLE: I don't know if this is in order or not, but this is a rather serious thing. I don't care whether it's in Ventura County, Los Angeles or Contra Costa; but, if we have the health problem that Mr. Vile indicates, I should like to make a motion that this committee notify the Department of Public Health and have a survey made immediately of that Ormand Beach at Oxnard in Ventura County and come up with an answer. Because as he says, if the law doesn't take care of it, you don't need a law to take care of something like that if it's a public nuisance and if the health of the people in the area whether they're fishing or swimming, whether it's posted or not, is beside the point. Let's get down to brass tacks. If this committee finds that to be the

case, then we move in and do something about it or the department responsible moves in and does something about it. I'll put that in a formal motion.

CHAIRMAN MEYERS: It has been moved and seconded. Before I call for the question, I might say, Don, I'm glad you made this motion because I had made inquiry a little while ago as to the condition and about being quarantined and what had been done. And not only do these problems apply in the Los Angeles area, but I would venture to say that you'll find it applies in many, many sections of California, and that we have a similar situation in the Bay area, so Don, would you care to amend your motion to provide that the proper department be directed by this committee to make a review of all similar conditions that have been called to their attention in the State of California?

ASSEMBLYMAN DOYLE: Well, we've heard a lot of talk about time and money and personnel this morning and yesterday. I am interested specifically today in Ormand Beach at Oxnard in Ventura County, and I would like to have that investigated immediately by the proper department and report back to this committee, and I think the local authorities in Ventura County should be involved - the Public Health people down there, the District Attorney and anyone else that has some legal position on it, and if someone wants to make a motion at the end of this meeting that we go into other areas, fine, but I agree with Mr. Vile if this is posted for non-swimmers and swimmers get in there, there shouldn't be fishing or anything else, and some steps should be taken toward eliminating that particular nuisance, because it does pertain to the health and public safety of the people of California.

ASSEMBLYMAN DON ALLEN: Mr. Chairman, were you under the impression that nothing was being done in the Hyperion-Santa Monica Bay area? If that is true, you can do it. I would vote for the motion, but what you would get bounced back is that you would find that they do have a patrol boat in there almost every day. I think it's running almost around the clock taking samples all over that bay - the Health Department now. We bought a boat down there - and you can get your acidity - I forget how often it is tested, but it is - both the City Health Department and the State Department of Health are in there. Those samples are taken and sent in and tested for bacterial count and the general observations made. So if you have that in mind, fine. If you want to accelerate that, I think they're going as fast as they can on that construction work. The trouble was, as Mr. Vile said, that we got to capacity before we could do anything about it - new habits of people - you take new methods of washing clothes - you jump from a customary 90 gallons of water a day - then some of these engineers will tell you to run 300 gallons of washing and you start pouring - and everybody gets into this new habit and they start pouring it down - it's going to overload the facilities pretty fast. Since we began to build, and I think we've just about got the San Fernando Valley outfall completed,

and that's going to take care of the situation fairly adequately I think up until the year of 2,000.

CHAIRMAN MEYERS: Well, Don, I don't believe that Donald Doyle was thinking of any particular place. He mentioned the combination of four or five there that the proper agencies, both state and county and cities, should be directed to look into and Don, before I would call the question of the motion, I would request that at the end of today's proceedings that you would make a motion similar to the one you've made dealing with the situation throughout the various sections of California because you have just as serious a problem in the Bay area and also in the northern part of the state. Is that agreeable?

ASSEMBLYMAN DOYLE: Well, it's agreeable, but I would like to have this Ormand Beach situation separately. I think that's a starting point.

CHAIRMAN MEYERS: The motion has been made and seconded. Would the secretary please read the motion:

MRS. CHARLYNE LITTLE: That the County and the Public Health Department survey the situation and see what can be done about it.

ASSEMBLYMAN DOYLE: Well, I would like to have the proper authorities report back to this committee, and when I said immediately I know it probably couldn't be done tomorrow but I don't think it should be done in November, either. I mean, by that, something should be done right away.

CHAIRMAN MEYERS: Well, why not set a time factor in it - say, within 30 days.

ASSEMBLYMAN DOYLE: Thirty days is all right, but I wouldn't like to see them down to the 28th day. I think how ever they're set up - they probably have people in the area who can do it. Specifically Ormand Beach at Oxnard.

CHAIRMAN MEYERS: The members of the committee have heard the motion - I'm sure they understand it. It has been thoroughly discussed. Will all of those in favor of the motion kindly say "Aye". Those opposed. Motion is carried - so ordered.

ASSEMBLYMAN HEGLAND: One question of the witness. Could you tell me what the policy or the law is governing just when somebody says a beach is polluted?

MR. VILE: Well, it's in the law, I believe. I don't know the exact number of days, but, in order for a beach to be considered polluted to the point where it should be quarantined, the beach has to run below the standards I believe it's ten days or over ten consecutive samplings or something like that. It

can go nine days, and on the tenth day they may have a change in the wind or a change of the currents and this water comes up to standards again and that sampling is forgotten and they start all over again. So you endanger the citizens of this state for nine days and on the tenth day it's safe for them to go bathing again.

ASSEMBLYMAN HEGLAND: Now I just want to be clear on this. You mean that, as a layman, it's your opinion that the Department of Health or whoever makes these checks could find a situation heavily adverse to public health at a given beach where people are swimming and yet they can't do anything or decide not to do anything until the specified number of days has passed. Is this about what you said?

MR. VILE: That's correct.

ASSEMBLYMAN HEGLAND: I wonder, Chairman Meyers, if this could be verified because I think everyone in this room goes swimming on occasion. If this could be verified by asking the appropriate state agency if this understanding is correct some time today?

MR. VILE: The whole thing is that a beach, subject to pollution, can go ahead for a number of days in a row having sub-standard water conditions which are detrimental to the people using the beach and on the last day of this number of days that it requires to quarantine the wind can shift, the currents can change, and the water standards come up, so that automatically throws that sampling out. It didn't run for ten consecutive days or how many days is required, so they start again for another ten days. May be it runs eight days the next time, so they throw it out again. Possibly you could have an interpretation. I believe I've seen some members of the water pollution boards here.

CHAIRMAN MEYERS: Sheridan, are you making this in the form of a motion?

ASSEMBLYMAN HEGLAND: No, I'm not making a motion. I just think this is an interesting thing how a beach could be severely polluted for say three days and apparently nothing is done about it - or four days or X days - until a certain number of days have passed and yet in the meantime you're having swimmers in the water every day according to my interpretation of the testimony.

CHAIRMAN MEYERS: We'll have that question answered later on. I see Mr. Bonderson out there, and I'm sure Mr. Bonderson will be able to give us some information and he will advise us whoever else might be required to provide us the information.

Thank you for being with us, Mr. Vile and making your presentation.

I'd like to ask Dr. Wheeler North to come back. I believe that there are a few points that some of the members of this committee would like to discuss with him.

ASSEMBLYMAN LINDSAY: Dr. North, have there been any correlation studies made around the mouths of the rivers in relation to what the aquatic life is in that area - what has happened where there are these tremendous sewerage outfalls dumping fresh water into the ocean now?

DR. NORTH: Well, let me deal with this question in several parts. Usually around the areas where rivers enter the ocean the amount of fresh water being put into the ocean is tremendous with respect to the amount of fresh water being put in by even the largest of our sewage outfalls here in Southern California. Consequently around rivers, estuaries, such places, you do find the biological environment considerably modified and you find plants and animals which are adapted to living in changing or in low salinities. However, we have not found these conditions in the vicinity of the outfalls in Southern California. I quote a statement that I heard Mr. Charles Gunderson of the Hyperion outfall make the other day. He stated that the dilution achieved there averaged, I believe, about 60 to 1 right at the surface above the outfall and as the effluent spread out into the bay it quickly diluted to about 100 to 1 to about 200 to 1. Such dilutions are so tremendous that the fresh water effect is negligible in my opinion. You might perhaps find a port in your diffuser that's discharging right against a rock in the bottom that would affect that rock, but aside from that the fresh water effect would be very small. Natural changes in the salinity in the ocean due to rainfall or evaporation may often change by 100:1 or 200:1, and marine animals seem to be able to tolerate this without any difficulty - marine animals and plants.

ASSEMBLYMAN LINDSAY: But it's curious that right around these outfalls something is going on.

DR. NORTH: Yes . . .

ASSEMBLYMAN LINDSAY: But you really don't know until you've tried, do you?

DR. NORTH: Well, the outfall, of course, is discharging a great deal of things besides fresh water. It discharges domestic sewage which has a lot of plant nutrients in it - what on land we call fertilizer - and the effect there is to perhaps build up a concentration of plants which is many, many, many times the actual weight of the nutrients that are in the effluent. So the effect can be multiplied considerably and those are the effects that we are now looking at as possibly more important.

CHAIRMAN MEYERS: I believe this is all, Dr. North. The next person is Dick Lane, who is speaking for the California Wildlife Federation.

MR. DICK LANE: I reside in Los Angeles. I am Co-chairman of the Water Pollution Committee of the Southern Council of Conservation Clubs and also Co-chairman for the California Wildlife Federation Water Pollution Committee.

We Sportsmen of the Southern California area greatly appreciate appearing before you at this Assembly Subcommittee Hearing to present our views in regard to water pollution, our recommendations towards better control of water pollution and basic facts towards an eventual solution to this extremely important problem as it affects our fish and game, beaches, ocean waters, lakes and streams.

We are not satisfied in many respects with the actions of the Regional Water Pollution Control Boards of California and the California State Water Pollution Control Board. We feel that their actions have not resulted in abatement of pollution in many of our streams, and especially in the ocean.

We believed that in 1949 when the California Legislature enacted the Dickey Water Pollution Control Law, that pollution would be controlled with a strong stick, and that within a few years all polluters would realize that they could not dump into our streams, rivers, and the ocean their waste products, and anything they wanted to get rid of; also that the cities and communities which had waste discharge problems, would be well directed by the Regional and State Water Pollution Control Boards in the proper methods of waste disposal, and that they would all abide by these decisions and we would again have clean water.

Instead, almost ten years have passed and today we have a greater pollution problem than ever before with our streams still polluted to some extent, and the ocean filling up with untreated industrial waste, which in turn jeopardizes fish and aquatic life, and the accepted beneficial uses which have previously been determined. Many of our beaches have been closed as a menace to public health (bacterial contamination) or are about to be used for the disposal of waste products over which the Regional and State Water Pollution Control Boards do have abatement control according to the law. How much longer will we have to stand by and watch our natural resources be destroyed?

We grant to you that the conditions throughout California are critical and are being worked on. Also funds are insufficient to carry out many of the programs which are needed; population within the state has climbed steadily and will continue to climb; a second migration is now in progress, with our Golden State of California destined to become the largest State in the Union in the very near future.

This then means, Gentlemen, that we must prepare for an even greater population of not only people but of industry as well. Recognizing this fact, we must prepare now for the future by placing our house in order and increasing the effectiveness of

the Water Pollution Control Program throughout the entire state.

We suggest that a clearer state policy in regard to water pollution control be established, a policy which will define the responsibility of the State Water Pollution Control Board, and give the Regional Water Pollution Control Boards specific duties and power of action with review powers, and the approval of the State Water Pollution Board.

We further suggest, that the Regional Water Pollution Control Boards be required to have authority to take punitive action, and that they be required to act on this granted authority.

We also suggest and highly recommend, that each Regional Water Pollution Control Board of the State have a representative on its board who is conversant and associated with wildlife and recreation in addition to the members now appointed by the Governor.

We Sportsmen have always recognized the California Fish and Game Code as being sufficient to cope with pollution problems as it affects waters of the State. This Section, 5650, reads as follows:

"It is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this State any of the following:

- "(a) Any petroleum, acid, coal or tar oil, lampblack, aniline, bitumen, or residuary product of petroleum, or carbonaceous material or substance.
- "(b) Any refuse, liquid or solid, from any refinery, gas house, tannery, distillery, chemical works, mill or factory of any kind.
- "(c) Any sawdust, shavings, slabs, edgings.
- "(d) Any factory refuse, lime or slag.
- "(e) Any cocculus indicus.
- "(f) Any substance or material deleterious to fish, plant life, or bird life."

This former Fish and Game Code, Section 481, was reenacted in 1957 when the entire Fish and Game Code underwent a revision. It has been a good enforcement code since 1875-76, with, of course, substantial changes made only about eight times in an 82-year period of time, and during the entire period to 1949, or for a period of about 74 years, the Code was properly administered by the Department of Fish and Game, and enforced to the full extent of the law.

Then in 1949, to coincide with the enactment of the Dickey Water Pollution Control Act, there was added to the Fish and Game Code Section 481.5, now Section 5651 in the revised Code. This Section 5651 reads as follows:

"Whenever it is determined by the Department that a continuing and chronic condition of pollution exists, the Department shall report such conditions to the appropriate regional water pollution control board, and shall cooperate with and act through such board in obtaining correction in accordance with any laws administered by such board for control of practices for sewage and industrial waste disposal."

One change has been made in this Section since 1949 namely, the word "Department" was substituted for "Commission".

There was no loop-hole or confusion for the enforcement officers to check and double check, nor were there regional or state boards to report to in an effort to halt even simple pollution and the discharge of waste, sewage, cannery wastes, oil or anything else which could be deleterious to fish, plant life, or bird life.

We feel that our Department of Fish and Game and other agencies are put in the defensive position of trying to show how a discharge is detrimental to the fishery and other beneficial uses, while at the same time the dischargers are not required to show why they should be spared the cost of adequate treatment to protect the public waters.

This committee representing the sportsmen of this area has amassed a great deal of material and reports, and has talked to legislators and others who have a vital interest in the pollution problem.

We have made many trips during recent years to areas along our coast and have attended the regional board meetings and many of the state meetings. We have attended many of the Fish and Game Department conferences, and have cooperated with the Department in all cases where we could assist them on this problem. We know from first-hand knowledge that the Department is doing a good job, both in the field and in the laboratory, to pin-point the exact cause of the disappearance of kelp and other marine life near the outfalls. Open sores and cancers found on many of the coastal fishes, or even the lack of spawn and the change of habitat in many of our fisheries, can be attributed to the discharge of great quantities of industrial wastes, of which only a very small amount is soluble in the waters of the ocean.

Mr. Chairman, and Members of the Committee, in closing we may state for the record that we have not indicted the State Board or Regional Boards for the lack of enforcement, or for not taking a more firm stand in the abatement of waste disposal, or for the actual visible conditions in our harbors and bays as they are found today. Possibly, if we did not have some type of enforcement such as they have given to date, we would be in a far poorer condition than is found today.

We therefore request you to take into consideration all of the testimony that has been offered to this honorable subcommittee since its first meeting in San Francisco on November 4 and 5, 1957, keeping in mind the recommendations of the sportsmen and those interested in Northern California, personnel of the various departments reporting from the field with actual experience, as the key to water pollution control legislation for enactment by the 1959 legislature.

You as Members of our State Legislature are being depended upon by the sportsmen of this State to adopt effective water pollution control legislation in order to give the State Water Pollution Control Board and the Regional Water Pollution Control Boards the tools with which to do a better job than has been done in the past.

We feel confident that this can be done, and in turn this State will have taken care of its water, a very vital natural resource, its fish and game (another natural resource), its teeming ocean life (another natural resource), and its beaches, bays and harbors which will then again be a place of recreation and a pleasure to visit.

We thank you Mr. Chairman, and Members of the Committee, on behalf of the Sportsmen of this area.

CHAIRMAN MEYERS: Thank you, Mr. Lane.

We will call at this time Mr. J. E. McClintock, who is the director of the Southern California Sportfishing Association.

MR. J. E. McCLINTOCK: I'm a director and immediate past president of the Southern California Sportfishing Association. I have some brief remarks to make here. I represent the sportfishing landing operators of the Southern California area. The matter of pollution as it bears on our great ocean sportfishing activity is of great concern to my organization and all ocean anglers.

Southern California's ocean sportfishing is founded primarily on the use of live bait. Most of this bait, which is, of course, anchovies, sardines, and other types of forage fish, is taken in our harbors and immediate off-shore areas. We feel the increasing threat of excessive pollution in these waters could result in the eventual lowering, or a possible elimination, of this forage fish population....resulting in the loss of one of California's primary recreational activities and outlets.

Polluted water also is damaging to many semi-static and primary fish, such as croaker, halibut, etc. Fish and Game biologists who are constantly studying this threat can give you a much more technical description of the possible results of increasing pollution; I can only tell you that veteran sportsfishermen, sportboat skippers, and other experienced, but non-scientific

observers, have become increasingly concerned over this matter.

Another obvious result of wide-spread water pollution is its effect on the habits of most all our basic ocean sports fish. They must have clean water. If they find their native water habitat becoming contaminated they will gradually move to other areas, leaving barren famed and favorite fishing grounds enjoyed by millions of anglers throughout the years.

I urge that every possible action be taken by your committee to the end that legislative action and needed monies be secured to stave off future increases (and to correct present threats) of pollution in our harbors, bays and inshore waters.

ASSEMBLYMAN SUMNER: Mr. McClintock, isn't it true that this last summer the sport fishing in Southern California was one of the best that has ever been?

MR. McCLINTOCK: Absolutely. The main concern that we have is that the very existence of this sportfishing industry which is quite large here in Southern California, is dependent on live bait. You see, right here, roughly within a shoreline area of about 200 miles from San Diego on the south to up around Santa Barbara or a little further north, is the only place in the world where you have public live bait sportfishing, and live bait is our key concern. Pollutants or possible pollutants in the inner harbors have caused the live bait population as we have know it in the past years to disappear. It is only logical to conclude that these pollutants can, of course, drift out into the outer harbors which is now the mainstay of our live bait population. Without the live bait we wouldn't have this tremendous recreational facility, but we do have a large fish population not only last year but again this season, too, outside in the outer waters.

ASSEMBLYMAN SUMNER: Well, then, isn't it true, from what I've read and heard that this last year was better at least around Newport here - a lot of people were saying it was the best sport fishing they'd ever remembered at any time.

MR. McCLINTOCK: That's true, because we did have the live bait with which to attract the fish. But if further pollution continues or if the threat of pollution continues, we may not have this population of live bait with which to catch these fish - we might have to resort to such things as cut bait and trolled lures. The great bulk of your ocean sport fishing, by far, is caught with live bait.

CHAIRMAN MEYERS: Thank you, Mr. McClintock. We are going to have one more person appear before the committee before we go to lunch. It has been requested by Mr. Seth Gordon that he would like to appear before this committee to make a very brief presentation because he will not be available this afternoon.

MR. SETH GORDON: I'm Director of the Department of Fish and Game. You have already been very patient. The presentation in behalf of the five departments yesterday was quite complete, and I have little to say in addition to that at this time.

Probably at your hearing in San Francisco later we may be able to help clear up any additional items that may be necessary. One thing I would like to call your attention to is the fact that we have recently requested a formal opinion from the Attorney General with reference to our powers and duties under the present law. There has been quite a difference of opinion expressed between the Legislative Counsel, the members of this committee and the Attorney General's informal advice in the past with reference to our powers and duties and we hope to get that cleared up reasonably soon on the basis of the Attorney General's opinion and at that time it may be of help to you.

Now in closing Mr. Chairman, and members of the committee, I am confident that the rather irresponsible and unsupported statements and inferences that were made yesterday afternoon by the one witness with reference to the Fish and Game Department have not misled the committee in the least. However, if the Chairman desires, we shall be pleased to submit for the record a written statement covering the facts and the situation in those situations referred to yesterday. We shall be happy to produce that either to your secretary or submit it at your hearing in San Francisco.

CHAIRMAN MEYERS: Mr. Gordon, if you so desire to submit this information I am sure the committee will be glad to have it.

MR. GORDON: Reasonably soon and we will get it over to Mr. Williams. Thank you very much. You have been most patient.

CHAIRMAN MEYERS: We will now adjourn for lunch and convene again at 1:30.

ADJOURNMENT

CHAIRMAN MEYERS: The next persons on the agenda are Mr. E. V. Dockweiler and Carrol M. Wakeman, from the Harbor Department, City of Los Angeles.

ASSEMBLYMAN DON ALLEN: I'd like to tell you that I'm pretty fond of this witness, Admiral Dockweiler. He comes from probably one of the finest and most valuable families that we have ever had in Southern California. His father, the late Isadore Dockweiler, made quite a contribution. He has one brother now who is a Superior Court Judge, his late brother John was a United States Congressman and former District Attorney, and the City was fortunate enough to persuade the Admiral not to go into complete retirement, but to continue on, and he is doing a marvelous job in our Harbor Department.

CHAIRMAN MEYERS: For those in attendance we have Assemblyman Vincent Thomas from San Pedro. Vince has a problem which he has asked to be included on the agenda and we will take it up when we conclude our prepared agenda this afternoon.

ADMIRAL E. V. DOCKWEILER: I am Chief Engineer of the Los Angeles Harbor Department.

The Los Angeles Harbor Department has consistently supported the policy of maintaining adequate standards for the quality of water which enters its harbor from industrial sources.

This is evidenced by the Department's initiation of a study of problems in connection with waste discharges including a monthly survey of water conditions throughout the harbor beginning in the year 1947. Joint participation by industry, local and state public officials resulted in radical improvements which led to the establishment of the present water quality criteria. These were acceptable to the majority of the participants.

While this Department endorses the general policy of upgrading the standards of water under its jurisdiction, it should be fully understood by those interested that raising these standards beyond a certain point will increase maintenance expenditures of this Department appreciably, and these expenditures will bear a definite relationship to the degree of upgrading. During the development of this harbor's facilities over 50,000 creosoted wood piles, having an estimated gross value in excess of \$12,000,000, have been installed. If water standards were made compatible with those of the open ocean, replacement costs for these pilings would involve the annual expenditure of public funds amounting to approximately \$1,500,000.

By way of explanation, these creosoted wood piling which support many of our wharf systems are readily attacked and destroyed by certain marine fauna where favorable environmental conditions exist. The most ideal conditions for growth are found in waters of the open ocean or closely approximating its quality. The most usual factor considered in determining the rate of attack of this particular type of marine borer is the dissolved oxygen content of the water. If we consider the dissolved oxygen content of the water as our yardstick, then the maximum saturation of 7 to 8 parts per million, which is the normal amount found in ocean water, could be expected to produce a maximum attack with subsequent destruction of piling in 12 to 15 years. About 3 to 4 ppm has been found to be the lower limit under which little or no attack occurs and under such conditions wood creosoted piles would last indefinitely or a life expectancy of at least 50 years.

Most forms of industrial wastes lower the dissolved oxygen content of the water which, in turn, lessens the rate of deterioration of wood piling by these marine fauna and lowers the replacement cost resulting therefrom. Our current annual replacement costs for piling amount to \$50,000, and it is estimated

that after the full impact of existing water standards manifests itself, these costs will increase to approximately \$150,000. As a matter of interest, the most northerly location in the main channel at which marine borer attack is discernible indicates that a very large percentage of the water area of this harbor exceeds a dissolved oxygen content of 4 ppm.

This Department's future expansion program, operation and maintenance are dependent upon the revenue that it earns. The services and facilities that it provides are in a highly competitive field. The budgeting of its earnings is determined in a manner similar to private industry. The greater the maintenance cost, the less are the funds available for capital expenditures. There is a present need for at least \$25,000,000 in capital improvements in addition to those now under construction.

I would like to invite your attention to the fact that the citizens of this community, with the assistance of the Federal government and State tideland grants, have developed one of the finest harbors in the world from what was once a barren slough and an open roadstead.

Public funds exceeding \$100,000,000 have been spent on the creation of this harbor, which was developed primarily for the promotion and accommodation of commerce, navigation, and fishery. At this time I wish to point out that the term fishery is limited to the commercial operation of deep-water procurement and processing of fish. In fact, the Charter of the City of Los Angeles is quite specific regarding the aforementioned reasons for the development of this harbor and the State tideland grants are also predicted upon harbor development. Hence commerce, navigation and fishery are the basic and only real beneficial uses that should be considered in determining the water standards for this particular area. Not one of these beneficial uses is impaired by present water standards.

Other secondary activities, such as yacht anchorages, sport fishing and bathing in the Cabrillo Beach area are permitted only upon the approval of the Board of Harbor Commissioners, an approval which can be terminated. Authority for these activities to operate is predicated upon their non-interference with the primary aforementioned purposes. I might also add that present water standards do not adversely affect even these related activities.

I have pointed up these particular facts to you, gentlemen, because I am sure that you all realize that the determination of water standards are variable in that they must be definitely related to a situation existing in a particular area -- in other words, the beneficial uses involved.

While it is this Department's intention to subscribe to standards established by proper authority, in view of the fact that this harbor was developed to provide commercial harbor facilities and will continue to be operated basically as such, it is believed that further upgrading of these water standards is not justified.

In that regard, I would like to add, extemporaneously, that as we all know the development of government in this country is tending towards centralization, whether it's nationwide, state-wide or city-wide. Centralization, in order to be administered efficiently and expeditiously, must pretty much be predicated on the law of averages. Now the law of averages actually is only a mathematical entity, so it's reasonable to assume, then, that perhaps 50 percent of the people or the situations are content and the other 50 percent feel that they have been made to assume burdens that are not relative to the situation that they have created or in which they live. I believe that in this problem of setting water standards it should be approached, particularly in the State of California, in view of the wide latitude that it covers, the variable climates that it enhances and the numerous types of topography encountered, I believe that the present organization based on a regional basis, is the only sound approach to it, because there that particular group which is essentially autonomous in itself are able to evaluate the situation in the light in which it exists, and for that particular reason, we have worked very closely with the present regional office in Los Angeles and we have made tremendous strides, as history will bear out, in the harbor, that in raising our water standards and, frankly, I would like to see that organization continue in existence because I feel that it is the only rational and practical approach to it.

ASSEMBLYMAN LINDSAY: Mr. Dockweiler, isn't it true that a harbor such as Los Angeles harbor is a pretty well defined and also confined body of water?

ADMIRAL DOCKWEILER: Yes. You might almost consider it, to use the old Roman phrase, a "mar e nostrum" of the City of Los Angeles. It's definitely defined - the City Charter defines it, and as I say, was created by the citizens of Los Angeles. Nature for some reason or other gave us a lot of things, but it didn't give us a harbor.

ASSEMBLYMAN LINDSAY: The point is that in this particular instance the waters of the harbor are not used particularly for fishing or for bait boats or anything else.

ADMIRAL DOCKWEILER: No, they are not. That is an incidental use. We do have swimming at Cabrillo Beach - I can get the exact terms of the lease agreement with the City of Los Angeles on that - I think it's possibly a dollar a year, but I have heard no complaints directly or indirectly.

ASSEMBLYMAN LINDSAY: This is within your breakwater.

ADMIRAL DOCKWEILER: That is correct.

ASSEMBLYMAN LINDSAY: Is there actually much movement of the water itself in and out of the harbor - or does it have a vertical movement just up and down as the tides come in?

ADMIRAL DOCKWEILER: Well, it's a movement that's based almost exclusively - I say exclusively - we do have the flood control channel, but that as you know is seasonal, and the volume of water at the present time could possibly be 8.4 feet, although normally it would be in the range of maybe 4-3/4 feet.

ASSEMBLYMAN LINDSAY: But in your harbor itself there are not well-defined currents that keep replacing the water, are there?

ADMIRAL DOCKWEILER: Only the tidal flow currents.

ASSEMBLYMAN LINDSAY: Only the tidal flow in and out of the breakwater.

ADMIRAL DOCKWEILER: Yes.

ASSEMBLYMAN LINDSAY: Has there been any work done to your knowledge of using chemicals, for instance, in water to reduce the oxygen content?

ADMIRAL DOCKWEILER: My test engineer, Mr. Wakeman, is here, and he can answer all those technical questions. He has been with the Harbor Department over 30 years. He was in on this initial survey in 1947, and I do know that in the past we did have some problems of industrial waste entering the harbor, but those in the main have been pretty much solved or at least to our satisfaction as far as our beneficial uses or the primary purpose of the harbor is concerned.

ASSEMBLYMAN LINDSAY: Well, as you point out in this one instance the industrial wastes coming into your harbor may not adversely affect the harbor. They enhance its value by helping you prolong the life of your pilings.

ADMIRAL DOCKWEILER: Minimizing the maintenance costs. We do have the industrial waste, of course, from bituminous chemicals. And of course, ships, as they anchor in there, as you know, there's no sewage collection system for them and, to my knowledge, there's no such thing in any port in the world.

CHAIRMAN MEYERS: We appreciate very much Mr. Dockweiler, the background that you have given this committee, and we thank you for being with us this afternoon. Now, Mr. Wakeman.

MR. CARROL M. WAKEMAN: I'm the testing engineer for the City of Los Angeles Harbor Department.

ASSEMBLYMAN LINDSAY: Mr. Wakeman, I'll ask you the same question. To your knowledge has there been any work done in the chemical reduction of oxygen content in harbors for protection work on pilings?

MR. WAKEMAN: No, there has not.

ASSEMBLYMAN LINDSAY: Is there any way that you know that you protect these other than just creosoting them?

MR. WAKEMAN: We have been experimenting a number of years. There are some very good possibilities. However, they are very expensive and economics again enters the picture.

ASSEMBLYMAN LINDSAY: To your knowledge, does the gradual dissolving of the creosote in the pilings themselves create any problems from a pollution standpoint in the harbor?

MR. WAKEMAN: No, it does not. That phenomena, you might call it, takes place so slowly that there is no danger of pollution whatsoever even adjacent to the pile. You couldn't detect it. Creosote being an oily body, the solution of the creosote is so slight that it would be almost undetectible. There are data available, however, on that rate of solution.

ASSEMBLYMAN LINDSAY: This rate of solution is actually tied into the oxygen content in the water - which provides more for your marine life attacking than actually the living habits of the water.

MR. WAKEMAN: No, I do not believe so. The dilution is so slight. Dr. Tom Sweeney of the Naval Research Laboratory has two papers on that - one paper is currently in the CORROSION magazine, I think in the latest issue.

CHAIRMAN MEYERS: Do you have anything else you'd like to add, Mr. Wakeman?

MR. WAKEMAN: No, I don't believe so; I think Admiral Dockweiler covered the field.

ASSEMBLYMAN DON ALLEN: We had some testimony here this morning about testing - about this being done in the harbor and also in the Hyperion area. Do you recollect how often these samples are taken over there in the harbor?

MR. WAKEMAN: Yes, the program that was discussed earlier on the Hyperion outfall, that is done by the City of Los Angeles by representatives of the laboratory of the City of Los Angeles as distinguished from the Harbor Department - that's the Board

of Public Works - as distinguished from the Harbor Department. However, in Los Angeles harbor, we do have a program and we have a monthly sampling program embracing some 30 stations and very frequently that milk run is done more often than once a month if conditions seem to warrant it.

ASSEMBLYMAN DON ALLEN: Now doesn't that differ a little bit from what Public Works is doing - don't they take a daily bacterial count?

MR. WAKEMAN: Yes, they take a daily bacterial count every day along the beaches and less frequently off shore, but the bacterial count and the tests that are made along the beaches adjacent to El Segundo and all up and down those beaches are taken 24 hours a day and 365 days of the year. They amount to thousands of samples per year.

ASSEMBLYMAN DON ALLEN: In other words, there is a constant running of tests? By the way, how long does it take to get those tests back once the sample is delivered to the laboratory - do you do that work?

MR. WAKEMAN: Well, in our organization if we ran biological, oxygen demand or some of the other tests that require incubation of the organisms, it might take up to four or five days. However, I believe Norm Hume of the City of Los Angeles Department of Public Works is here in the audience and would give us more substantial data on that.

ASSEMBLYMAN DON ALLEN: Well, I heard some testimony here that had some of the fellows confused, that is, for a moment, knowing the problem - it was about this eight-day deal and then it takes some time to get the reports in. In other words, we have an almost 24-hour report in either Los Angeles Harbor or at the Hyperion treatment plant that we can pull on for pollution content at any time, isn't that right?

MR. WAKEMAN: That's right.

CHAIRMAN MEYERS: Thank you for coming forward, Mr. Wakeman.

Assemblyman Vincent Thomas came in from San Pedro and he has another meeting this afternoon, so at this time I would like to ask Assemblyman Thomas and Mr. Wise if they would kindly come forward and I have had some correspondence with Assemblyman Thomas relative to the Royal Palms becoming a State park and we included this matter on the agenda today. Mr. Wise is President of the San Pedro Property Owners Association.

ASSEMBLYMAN VINCENT THOMAS: I am the Assemblyman for the 68th District. Well, this will only take a few minutes because what we're trying to do is put this subject matter on your agenda for a continuing study and perhaps we can furnish your staff and

the members of your committee certain information concerning this project. For ten years we've been making a State park out of this and one commissioner contends there's too much pollution in the area. Although we did appropriate half a million dollars in 1956 to have a State park made out of Royal Palms, the Park Commission has been a little dilatory in proceeding. In the meantime the Sanitation District acquired permission to put a septic tank right on the property of Royal Palms and the engineer of the sanitation district testified before you this morning. I don't know what his testimony was concerning this matter.

We filed a condemnation proceeding to acquire the property and meantime the Department of Public Works has appropriated the money and is ready to negotiate to buy the land to make a State park, so we have two agencies here trying to get possession of this four or five acres of land. Now the mayors of the Sanitation District had a meeting last week. The information was not publicized as to the contents of their meeting. We couldn't get any information except by the grapevine. On several occasions the Army has objected to the septic tank that they had constructed - it is causing pollution. The sanitation district wants to expand this septic tank, but that's our problem. If the sanitation district expands its septic tank and makes it larger, I am very doubtful whether we could go ahead and proceed with the State Park Commission's program. We're ready to negotiate and to do everything possible - the City of Los Angeles has agreed to maintain the park, so that's our problem. The only way that you could understand this problem is you'd have to be present to see it. Some one from your staff or one or two members of the committee could sometime come to Royal Palms park area and look at it and you would appreciate the problem more so than from testimony. The property owners in my district all have protested any further enlargement of the septic tank; but it seems on July 9 the sanitation district - the Board of Directors of which are all of the mayors of the county - will meet to vote on this project. If they vote to enlarge this septic tank, our park program is completely out of the picture. So there's our situation.

Leo Carrillo, who is on the commission, contended right along that there has been too much pollution along the Royal Palms area and he was the only one who really objected somewhat to make a state park out of this area, but it is one of the most beautiful sites for a State park.

We would like to have your committee look into it and keep it on your agenda, so we could see what happens after the 9th of July. If they enlarge the septic tank, I am sure that your committee will have to do some detailed studying on this subject matter.

I talked to the Fish and Game Department and asked them for reports. Our Committee on Fish and Game were taken along the coastline there four or five times to be shown around the Royal Palms area where the abalones have died. Well, I just can't get any report definitely from the Fish and Game Department as to what they

have done by way of procedure - whether they have filed a complaint with the Regional Water Pollution Control Board or not. I just can't get that kind of information. What I'm requesting your committee to do (1) is put the subject within the purview of your committee, (2) see if you could have your staff members or someone on the committee visit the area, look at the septic tank that was installed, and (3) determine whether or not the enlargement would be a detrimental situation. If there's any additional information that Mr. Wise would like to give you, he's here.

ASSEMBLYMAN DON ALLEN: I move that the staff members be delegated by the Chairman to bring that information in and acquaint all of us with it. If you want to put it to motion, fine. There are a couple questions I want to ask Mr. Thomas.

CHAIRMAN MEYERS: It has been moved and seconded, but before you make the motion, I think a couple of us will make it a point to get out there tomorrow to look over the situation, including a member and a staff member.

ASSEMBLYMAN DON ALLEN: I'm glad to do Mr. Thomas a favor. I know the problem out there.

CHAIRMAN MEYERS: Then the motion has been made that the members of the committee and the staff will make a point to go on location and look this matter over and then report its findings. Vince, to get the matter clear, when is the deadline on this matter for you?

ASSEMBLYMAN THOMAS: There is no deadline. This is going to be a continuing problem for your committee. The only thought I had in mind is that I wanted you to take a look at this septic tank and secondly we will present all of the information that we have accumulated as we go along, but the deadline as to the voting by the sanitation district is July 9th. So in the meantime the Park Commission passed a resolution that, as soon as they acquire the parking properties from the Army, which the Army agreed to give all the parking area over to the Division of State Parks on a permanent basis, that condemnation be filed by the Park Commission, so they're just waiting for this. Now the sanitation district wrote the Park Commission two or three weeks ago stating prior to July 9th they are giving up all of the Army property that they have possessed in building this septic tank, so I think by July 9th I would like to have at least several members of the committee look at this.

CHAIRMAN MEYERS: Well, Mr. Thomas, I think that at least a couple members will be out there to look at it and also members of the staff, before that time. And then I would also, Mr. Allen, include in your motion that the findings of the staff and so forth shall be made part of our record here.

ASSEMBLYMAN DOYLE: Well, if you're going to do Mr. Thomas any good you'd better do it before we get this report out, which might be three months, and I think that your findings should be made public or at least be put into Mr. Thomas' hands where he could use them. Isn't that right, Mr. Thomas?

ASSEMBLYMAN THOMAS: That's right. The State Park Commission is ready to proceed. They have passed the motion for condemnation of the land. The Attorney General is waiting for the papers and it all depends on what happens July 9th, so there's the situation.

CHAIRMAN MEYERS: Then, Mr. Thomas and members of the committee, we'll do it on a twofold basis. The staff will go out there and get the information, and we'll get a letter to Beaches and Parks as to our findings. It will also be made a part of our official record of the hearing here today, is that agreeable? All those in favor signify by saying Aye. Opposed? The motion is carried.

ASSEMBLYMAN DON ALLEN: How much of this Royal Palms property are you getting for the State Park.

ASSEMBLYMAN THOMAS: Well, it's owned by the Marlow Company at present, but the Department of Public Works passed a motion about two months ago to purchase it. The highway goes through the Public Works Department.

ASSEMBLYMAN DON ALLEN: How many acres in it?

ASSEMBLYMAN THOMAS: About four and a half acres.

MR. A.H. GREIDENBACK: I represent the owners of the Royal Palms property. About 4,300 feet of ocean front.

ASSEMBLYMAN DON ALLEN: In other words, the Marlow Company?

MR. GREIDENBACK: Marlow is one of the partners.

ASSEMBLYMAN DON ALLEN: Yes. Now at one time isn't it true that you folks would have given other acreage, that is, would have allowed the State Park Department to come in and bought at a very reasonable figure a certain amount of that land for golf-course purposes?

MR. GREIDENBACK: That's true.

ASSEMBLYMAN DON ALLEN: In other words, what the Park Department has done by dragging their feet - it has just kissed away about a half a million dollars a year in golf fees in that area that is so badly needed that could have been used on useful projects in probably some of the rest of you fellows' districts.

MR. GREIDENBACK: I went to the trouble of making a telephone call to Sacramento and asked one of the members of the State Park Department whether he wanted the golf course property at all. He said, "No". They were only interested in the beach at the Royal Palms property. So I said, "All right, if you do not want the golf course we're going to go ahead and subdivide it." He said, "Go ahead, we don't want it." So we went ahead and started to subdivide it.

ASSEMBLYMAN DON ALLEN: Well, as a citizen and a taxpayer, I know that you people are going to make money, and that's what you should do, off that subdivision. But you were pretty generous, all of you, to offer that price for that golf course. Knowing the scarcity around Los Angeles City of golf courses, is it an exaggeration to say that through dime-dizzy, dollars-dumb approach of the Park Department that they just kissed a half million dollars income away every year? Would that be an unfair statement to make?

MR. GREIDENBACK: I would hate to comment on that.

CHAIRMAN MEYERS: Well, I believe the committee had proposed a question that Mr. Vincent Thomas was attempting to answer there as far as the footage, would you care to elaborate on that, please?

MR. GREIDENBACK: Well, we have never calculated the amount of acreage, but we have 4,300 lineal feet of beach. That is the only basis that we have ever calculated the property on.

CHAIRMAN MEYERS: I see, thank you for coming forward and answering these questions. Just a moment, please, Mrs. Davis.

ASSEMBLYWOMAN DAVIS: I didn't have a question. I just would have been willing to concur with what Mr. Allen said.

CHAIRMAN MEYERS: Mr. Wise, do you have anything further to add as far as the San Pedro Property Owners Association is concerned?

MR. GEORGE WISE: Just one word, sir. About two weeks ago the County Board of Supervisors of Los Angeles County unanimously passed a resolution that this area be devoted to park purposes rather than sewage purposes. Secondly, the proposal now made to expand a treatment plant on the beach is a substitute or alternative proposal to taking over the park. However, there are many satisfactory alternatives which have been presented, engineering studies made to carry this same sewage back to the joint disposal plant now in existence rather than locating a sewage plant at the beach adjacent to the proposed park area. That, I think, is the heart of the problem as stated by Mr. Thomas. Thank you very much.

CHAIRMAN MEYERS: Thank you, Mr. Wise. Now we will return to today's agenda. I understand that Dr. Nelson Mathison of the California Council of Diving Clubs is in attendance. Would you please come up, sir, and identify yourself?

DR. NELSON E. MATHISON: I represent the Council of Skin Diving Clubs - about 4,000 organized members. I have a little paper here I would like to read.

I was requested to give a talk on the generalization of how polluted water can affect skindivers and swimmers. I looked up in the dictionary to find out the meaning of the word, pollution, and it sounded rather horrible to me - to make physically unclean, defile, stain, soil, make morally corrupt, abuse, infect, ravish.

Skin diving is the world's fastest growing sport. It is practiced in every country in the world. Over 1,000,000 skin divers in the United States and a great percentage of these divers are right here in Southern California. In the sunlight penetrating our shallow waters off our coast, we find abundant marine life, valuable kelp bars that help to feed the sea animals. Here the skin divers find lobster, abalone and fish for sport and the table. The fascination of this underwater world is the chief attraction to the skindiver. Here he can explore, fish, hunt, take subsurface pictures or just enjoy this healthy, practically unknown new world. It is a sport for all ages. Doctors recommend cardiac cases strengthening their bodies by swimming. It is less tiring than walking, because the body weight is neutral in the water. The gentle relaxation and strengthening exercise in ocean water is also beneficial because there's a wonderful refreshing feeling that comes from swimming in clean salt water. We know that ocean water is normally bacteriacidal. We also know that polluted water can contain concretions in which the germs of typhoid, amoebiasis, and intestinal parasites may exist. Skin divers who use polluted water could be the first to carry infestations and infections home to their families. It is not necessary to go into the water to become ill. Polluted globules may be washed onto the beaches where children are playing in the sand, and they're apt to put their fingers in their mouth or contaminate their food.

The sea holds many treasures besides the agar, kelp, lobsters, abalone and fish. Mineral deposits such as jade up to 100 pounds have been found. This particular type of jade is worth \$20 a pound and there's lots more where it came from. There are many skin divers who work full time at salvage operations, locating sunken boats, tending moorings and teaching lung and skin diving. We are now about to lose this great heritage of ours from pollution of California waters. Soon life will cease to live in these beautiful coastal areas. Skin divers and all those who come in contact with the water will be forced to give up their recreation and means of living or move elsewhere.

I would like to quote an article from the latest SKINDIVER magazine about the pollution in Southern California. "The westerly expansion of pollution damage from Los Angeles White Point sewer outfall near San Pedro has been reported by the California

Department of Fish and Game. The damage has extended to an area near Point Vincente five miles west of Whites Point. Until 1957 this area had a small but luxuriant bed of kelp which is now entirely gone. In addition until last summer the sea bottom was covered with a dense plant growth which is now showing signs of becoming barren. All that remains is a narrow band of low vegetation that extends and lies from 12 to 20 feet of water. Both inshore and offshore from this zone the rocky bottom is almost devoid of life. The only living objects observed were numerous sea urchins and a few abalones, with badly eroded shells and emaciated bodies. This is further evidenced at the White Point outfall like a creeping malignancy that is making its effect felt in a wide area with each passing month. Observations were made by the California Department of Fish and Game skindivers."

Thank you very much.

ASSEMBLYMAN DOYLE: I take it the Doctor is against pollution like all the rest of us; but I am wondering if these divers, and we have some of them up north, too, they don't particularly have to dive around these sewer outfalls, do they?

DR. MATHISON: No, we dive all up and down the coast, not necessarily around the polluted areas, but the area is getting so limited and the skin divers are getting so numerous that the area is actually getting overcrowded.

ASSEMBLYMAN DON ALLEN: I think I could make a point for the Doctor. Doctor, I'd like to ask you a question. Isn't it true that most of your favorite areas for the skindivers, where you train these youngsters and the other people in skindiving, formerly were good clean areas and now the pollution is encroaching in these areas? Isn't that what your contention is?

DR. MATHISON: Yes, that's the point I'm trying to put over is that our areas for skindiving are gradually being diminished, and where the sewer outfalls are are usually in the best diving areas. For instance, White Point and Dana Point areas.

ASSEMBLYMAN BELOTTI: How extensive are the divers' operations insofar as it applies to the taking of abalone, both commercial and sport?

DR. MATHISON: Well we have, for instance, 400,000 divers, I would estimate, and each diver is allowed five abalone per day.

ASSEMBLYMAN BELOTTI: You mean 4,000, don't you?

DR. MATHISON: 4,000 or 40,000 it's very hard to tell, but I believe it's nearer 40,000. It's a huge number. Anyway, each diver is allowed only five abalone, and in season everyone tries to get his abalone.

There's a gentleman down here who asked me about inoculation against catching these diseases. For amoebiasis there is no known inoculation and no known cure. It's something that once we have we will usually always have. Typhoid and paratyphoid, yes.

CHAIRMAN MEYERS: Thank you, Doctor. Is Mr. Robert A. Ratherford, of the California Council of Diving Clubs, present? Would you please come forward?

MR. ROBERT RATHERFORD: I am the Safety Director for the California Council of Diving Clubs and also acting President Pro Tem. I would just like to state that I would like to correct one figure that seemed to be slightly mixed up with Dr. Mathison, and that was the quantity of divers in Southern California. It is 400,000. Throughout the United States it is well in excess of a little over 2,000,000 throughout the country, and it's growing all the time. We would like to state that the areas which ten years ago were nice clean areas are now quite polluted and that this affects not only the divers but the swimmers, the shell collectors, all people who enjoy the beaches. And we, for one, are all out to organize our group to the utmost. We are definitely against pollution, naturally, and we will do our best to get all of these divers together, organized en masse, to do something about pollution, no matter what we have to do. Thank you very much.

CHAIRMAN MEYERS: Mr. Ratherford, just as a point of information, how many divers would you say your Council represents?

MR. RATHERFORD: The Council itself represents 4,000 organized that we have signed, paid members. There are various clubs and private individuals.

CHAIRMAN MEYERS: This is for the whole State of California?

MR. RATHERFORD: Yes, for the whole State of California.

CHAIRMAN MEYERS: Thank you, Mr. Ratherford.

We are now near the end of our agenda for today. There were a couple of unfinished items. Earlier this morning a member of this committee was making some inquiries and we would be pleased to have Mr. Paul Bonderson respond to the inquiry, but I understand Mr. Bonderson has indicated Mr. Ed Reinke of the State Department of Public Health would be in a position to reply to the questions which were proposed.

Mr. Bonderson, will you please go over this question briefly?

MR. BONDERSON: I'm Executive Officer of the State Water Pollution Control Board. As I recall the question pertained to bacteriological standards for safe bathing, and standards have been adopted by the State Department of Public Health for water

contact sports areas, and I believe Mr. Reinke, who is Chief of the Bureau of Sanitary Engineering, would be in a far better position to discuss this question and the significance of these standards as it relates to public health rather than myself.

MR. EDWARD A. REINKE: I am Chief of the Bureau of Sanitary Engineering of the State Department of Public Health. I appeared before your committee at its organization meeting in Sacramento and gave a brief statement. If I understood the question correctly this morning it had to do with two things. One was the standard itself, and the other was the question about how the standard was applied. I think the simplest thing would be to read from the laws and regulations only the bacteriological standard, which I think was the question referred to. However, I believe first I should read the physical standard.

"No sewage, sludge, grease, or other physical evidence of sewage discharge shall be visible at any time on any public beaches or water-contact sports areas." And bacteriological standards:

"Samples of water from each sampling station at a public beach or public water-contact sports area shall have a most probable number of coliform organisms less than 1,000 per 100 ml. (or 10 per ml.); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml., and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml."

I read that, Mr. Chairman, because I thought it was of interest to note the requirement that there be no physical evidence of sewage, there be no single sample higher than 10,000 not checked by a repeat sample, and that that procedure be followed. The condition that Mr. Hegland asked about or was testified to this morning of going nine days under unhealthful conditions, if this procedure is followed, could not be carried out. I'll submit this for the record and we have extra copies and can furnish them to the committee.

ASSEMBLYMAN LINDSAY: Mr. Chairman, what does the term ml. refer to?

MR. REINKE: Millileter. I was trying to be brief, but I was too brief.

ASSEMBLYMAN DON ALLEN: In other words, if two or three or more of these sample stations would show a higher bacteria content than is allowed in contact sports, as soon as the laboratory test was returned, that would be about four days as has been testified, immediate quarantine could go into effect, could it not?

MR. REINKE: That is correct.

ASSEMBLYMAN DON ALLEN: In other words, you wouldn't have to have this waiting hiatus of nine days or ten days as was testified here - I think that's a misunderstanding that crept into this situation. In other words, the quarantine can come immediately, is that not right?

MR. REINKE: That is correct. That quarantine, or warning - sometimes these are not quarantine signs - they're just warning signs until further study can be made to determine whether quarantine is warranted. Quarantine is a pretty severe act, as you know.

ASSEMBLYMAN DON ALLEN: Yes, but quarantine - I used quarantine deliberately, sir, because that is the final action, and that final action can come immediately, can it not?

MR. REINKE: Well, that is still a step under the procedures in the Water Pollution Law, the quarantine is usually taken against someone other than the person who is causing the condition. You talked this morning, sir, about the beach at Santa Monica. The quarantine was against the users of the beach. When finally the matter was taken to court, it was against the owners of the sewer system...Los Angeles and the other cities that were contributing to this area.

ASSEMBLYMAN DON ALLEN: That's true. But as I stated, now that we have the precedent set that wherein the determination of the health officer or the people within the area that this area is contaminated to such an extent that there is no such thing as a 30-day wait or an eight-day wait, but within 24 hours the situation gets to the point where it is within the estimation of the health officer, he can close that beach.

MR. REINKE: Yes, sir, and I might comment for the record. Assemblyman Lindsay I am sure is quite familiar with this, that action was taken at Lake Tahoe when there was sewage discharged by overflow to Lake Tahoe. It was a very unpopular thing to do, but it was necessary to do it. So it can be done immediately.

ASSEMBLYMAN DON ANDERSON: Mr. Reinke, you're familiar with the Ormand Beach area that was discussed this morning in Ventura County?

MR. REINKE: Ormand Beach? I am generally familiar with it, yes.

ASSEMBLYMAN ANDERSON: Can you discuss it with relation to the action that was taken by this committee this morning?

MR. REINKE: Well, I can discuss it very briefly, but I think that for the committee's benefit, rather than take the rest of the

afternoon, it would be better to make the report that you requested. We have taken action, as was testified this morning, jointly with the County Health Officer, to warn against swimming on that beach.

ASSEMBLYMAN ANDERSON: You definitely have taken action?

MR. REINKE: That action has been taken, but I think it would be better for the committee records to have the whole story in and we would be very happy to start right away. We'll expect the official notice from the committee, but we'll be happy to start right away.

ASSEMBLYMAN ANDERSON: As far as the State of California is concerned, you have taken the necessary steps.

MR. REINKE: We have taken the first step, as Mr. Allen described it.

CHAIRMAN MEYERS: That request will be forthcoming from the Department very soon, but I assume you will be proceeding before the request arrives.

MR. REINKE: That's correct, sir.

ASSEMBLYMAN SUMNER: As long as we're talking about beaches and unhealthy conditions, would your Department have any control over this Bolsa Chica beach that is in the state park system as far as the Legislature is concerned but hasn't been acquired by the Division of Beaches and Parks right up the coast here?

MR. REINKE: In what respect, sir?

ASSEMBLYMAN SUMNER: Would you have any powers to close that area or maybe you aren't familiar with it if you found that there was an unsanitary condition existing on the beach, or would that be strictly up to the county?

MR. REINKE: I'm sorry I can't answer such a general question. As you know, we have laws that refer to both the state and the local agencies, and I would have to know all the circumstances before I could answer the question.

CHAIRMAN MEYERS: Thank you, Mr. Reinke.

I believe Assemblyman Frank Belotti has a matter which he would like to call to the attention of the committee before he leaves.

ASSEMBLYMAN BELOTTI: Yes, Mr. Chairman. I think most of the members of the committee will recall that at the last budget session the Chairman and myself introduced legislation in an attempt to obtain funds for the purpose of making a study particularly in the

San Francisco Bay area, but it also included the upper Sacramento River, to determine what is causing the deterioration or the losses particularly among the fisheries with specific attention directed towards the declining salmon, and we were unsuccessful in obtaining the necessary funds, so Mr. Chairman, without going into the details, I am of the opinion that this is the appropriate subcommittee to consider a motion at this time that in its recommendations to the full committee at the end of the year that we again include (1) to propose the proper legislation at the next session, next year, to again make the money available for the proper study under the jurisdiction of the Department of Fish and Game, not only in the San Francisco Bay area but the Sacramento River. I would make that motion at this time.

CHAIRMAN MEYERS: The motion has been made.

ASSEMBLYWOMAN DAVIS: Mr. Chairman, before there's a second, I believe, and I want to make sure, Mr. Belotti, that you perhaps are referring to the pollution problem from Keswick Dam as far as the copper mines are concerned relative to the damage to the salmon, or what did you particularly have in mind?

ASSEMBLYMAN BELOTTI: Well, you'll recall, Mrs. Davis, that the number one problem was in the San Francisco Bay. Now that was one of them, but I think we have given that quite a lot of consideration, not only by the Fish and Game Committee, but by other committees also, and I think we know pretty well where we stand insofar as that mining operation is concerned. But there are many other factors, and the problem that arose at the time in obtaining the funds was due to the fact that it seemed that the upper Sacramento area was concerned more with other than the fisheries, and for that reason, of course, we found there were conditions prohibiting the use of Fish and Game funds for studies other than the San Francisco Bay area. But I feel that in addition to the San Francisco Bay that we should endeavor to have the proper studies made in the Sacramento River because the salmon fisheries are definitely faced with a great danger and I feel that, unless these studies are made and we know exactly what is causing the losses, we are not going to be in a position to propose the necessary legislation to remedy it.

ASSEMBLYWOMAN DAVIS: Well, I'd like to again ask, Mr. Belotti, I don't know what you are trying to, frankly, achieve here. What you have in mind, wouldn't that be more or less a Fish and Game problem more than a pollution problem, other than the copper mines, in the Upper Sacramento in the vicinity of Keswick Dam, I don't know of any particular pollution problem that has been called to my attention, and that's my area. Perhaps I've missed the point there, but . . .

CHAIRMAN MEYERS: Well, Mrs. Davis, if I could, at this point. Mr. Belotti and I have worked very carefully on this matter, and, if my memory serves me correctly, it was the original recommendation of the State Water Pollution Board that certain monies be

included in the budget for the purposes of conducting a study of San Francisco Bay area as to the pollution problem and then also as to the Sacramento River. I believe Mr. Bonderson will attest the fact that the Bay situation is probably one of the worst - if not the worst - in the northern part of the State, and it was felt that they would proceed with this study first and then go into the Sacramento study secondary, and that the arrangement would be that the money would be appropriated for the essential study and that the Sacramento study would be done over a period of two or three years because of the fact it was going to be apparent we would have difficulty in securing sufficient funds to accomplish this. But as you no doubt know, the way it finally ended up without going into a lot of background - not taking the time of the committee here this afternoon - there was finally appropriated \$18,930 for a study of the San Francisco Bay situation, which in the thinking of all interested parties they might as well not have given it at all because they can't do anything with that amount of money to really do a comprehensive study of the situation in the San Francisco Bay. It wasn't too long ago that the five state agencies in question have conducted a complete report and survey of the Bay and the results were almost unanimous as to the pollution problem - I'm speaking now of the south end of the Bay - and this is why the State Department had requested the monies for the study of the Bay. I hope I've answered this problem as clearly as I can.

ASSEMBLYWOMAN DAVIS: Frankly, Mr. Chairman, it's just a point of information when you refer to the Upper Sacramento, the Sacramento originates in Siskiyou County and I'm merely trying to determine what the problem is in its entirety since it's my Assembly District. I am just seeking some information, frankly.

ASSEMBLYMAN BELOTTI: Well, of course, we won't have the information until the study is made.

ASSEMBLYWOMAN DAVIS: Well, that is true, but what is the necessity of the study? What has actually brought it about?

ASSEMBLYMAN BELOTTI: Well, the necessity is based on the fact that the salmon fisheries are gradually diminishing, and it will not be many years before we won't have any salmon, and the Sacramento River is one of the spawning areas for the salmon.

ASSEMBLYWOMAN DAVIS: Well, I realize that, Mr. Belotti, and that is the reason that I'm questioning whether or not it comes in the propriety of this committee or your Fish and Game committee. That was my only point, because this is pollution, and I don't know whether it's supposed to come to this committee or to the Fish and Game committee - that's the point I want to have clarified.

ASSEMBLYMAN BELOTTI: Well, I feel that it's properly before this committee because the problem is one of pollution.

ASSEMBLYMAN DON ALLEN: Frank, is this money that you're trying to get now out of the Fish and Game Preservation Fund for this work?

ASSEMBLYMAN BELOTTI: That's right.

ASSEMBLYMAN DON ALLEN: That's why you're limiting it to the Fish and Game - as a matter of fact, why not go to the general fund and get it. If it's to be a pollution matter, it will affect other things besides fish.

ASSEMBLYMAN BELOTTI: Well, may I say to you, Mr. Allen, that the Department of Fish and Game are heartily in favor of conducting this study.

ASSEMBLYMAN DON ALLEN: Oh, they're heartily in favor of spending money like there was no tomorrow. They did that with the Fish and Game Preservation Fund.

ASSEMBLYMAN BELOTTI: And I think that you'll find that there's a certain degree of perhaps lack of coordination between the Water Pollution Board and the Department of Fish and Game and so Fish and Game insist that they would prefer, in order to come up with the kind of a report that they feel we should have, they should have the jurisdiction and the right to conduct and control that study, insofar as the fisheries are concerned, and they're willing to use the money from their funds, but of course, inasmuch as the study involves the Upper Sacramento River, would be at least three-fourths other than for fish, then according to the law they could not use that fund.

ASSEMBLYMAN DON ALLEN: Yes, because that's the only way that you could get that money from the Fish and Game Preservation Fund is through this technicality. But I want to tell you something. Somebody's going to take a look at that Fish and Game Preservation Fund and somebody's going to be beating at our door, when they see the net results of it. Because there was \$14,000,000 that has been taken from our Southern California racetracks down here and we don't mind it at all because our people go up in your country and help your economy by fishing - that's about the only place you've got it - we don't begrudge it; but we want to know what we are getting for our dough up there, and we want to know what is being spent up there, and I think that if you had some photostatic copies of this Fish and Game Preservation Fund, and I'm surprised that some of you fellows in the north where they have spent this money don't look at the net results that have been taken from us. There have been a lot of experiments up there and very little delivery done on the Fish and Game Preservation Fund. Now, we had a little difficult time down here we got it - about a half a million dollars out of that total \$14,000,000 in Los Angeles and a little spread down here in Orange County, and a little bit in San Diego County. But we don't mind that - we wouldn't want to waste it down here because we don't have any place to put the fish -

that's another thing, we'd rather place them where they are up in your country. But Frank, before we start giving any further money for these dudes in the Fish and Game Department to start playing hopscotch with, I want to take an awful close look at it. Now I would rather put my faith in your pollution boards than I would in that Fish and Game. Those guys are going to watch one another. Fish and Game - who's going to watch them?

ASSEMBLYMAN BELOTTI: First of all, Mr. Allen, let me tell you something. Because as far as I'm concerned and the district that I represent, if we have spent a nickel out of the Wildlife Conservation Board money, which is race horse revenue, in your district and other sections of the state, we have spent a thousand dollars. Now that's the proportions, I would say. I have been a member of that board since 1950, and I know where the money goes. And this money here that we're speaking of for the study, I say again is for San Francisco Bay and the Sacramento River - and I don't even know that my district gets any benefit from that study and I don't care whether the money comes from the general fund or whether it comes from Fish and Game Preservation Fund. I say that this committee has a responsibility to say that we need money for this study based on the request by the Water Pollution Board and the Department of Fish and Game, and we have to go on record and try to get that money and bring those two groups together so that the study will be made and we can get the information and we know exactly what's happening to the fish and what we can do about it.

ASSEMBLYMAN DON ALLEN: You and I are going the same way, Frank, but let's take a look at it before we pass motions here to go on record and draft any bills to take it out of the Fish and Game Preservation Fund. I'll tell you, if there are going to be any benefits to be derived from pollution it must be an overall study, and I think that is the very principle of this committee. I think we need the study and went along with you fellows on it, but to narrow the scope down to do a piecemeal job from an engineering standpoint, that is not the most economical or feasible way to do it.

CHAIRMAN MEYERS: Well, Don, if I may break in at this point, Frank and I labored for weeks trying to get a bill through Sacramento. We didn't care what fund it came out of - the general fund, the Fish and Game Preservation Fund, etc., - we could go on here for an hour and a half telling you the ramifications that entered this situation. Frank has made the motion with the idea of having this situation brought before the attention of the committee that something can be done. It's based upon the report of the five state agencies here in the State of California, where they indicate that the main problem as far as pollution is concerned is in the south end of San Francisco Bay. It's one of the most serious in the state, and as far as I'm concerned, no matter where the money will come from as long as we can get the survey under way, that's the main pertinent intention of the motion.

ASSEMBLYMAN DOYLE: Mr. Chairman, where is the money coming from to make this study?

ASSEMBLYMAN BELOTTI: Well, the money that was going to come to make the study in the San Francisco Bay area was coming from Fish and Game Preservation Funds.

ASSEMBLYMAN DOYLE: Is that as of now, too? In other words, if we ask them to make the study now, Frank, where will the money come from?

ASSEMBLYMAN BELOTTI: My motion is that we can leave that open - would be to recommend, include in the recommendations of this subcommittee to the full committee that in their final report to the Legislature they include a recommendation for funds to be made available for the purpose of conducting the pollution study as it applies to the fisheries, particularly the salmon in not only the San Francisco Bay but the Sacramento River.

ASSEMBLYMAN DOYLE: All right, let me ask you this. Will that take another bill next January in order to bring this about?

ASSEMBLYMAN BELOTTI: Well, I suppose it will.

ASSEMBLYMAN DOYLE: I'll sign one.

ASSEMBLYMAN LINDSAY: Before we vote on this, maybe we can throw a little bit of clarification out here. Number one, the problem that we faced that time was that if the funds were not under the control of Fish and Game to make the survey, there was a serious question whether or not we could have money from the federal fund to match or to become part of the survey funds to pay the whole cost. The second problem that we're actually talking about here is making a survey of the Sacramento River to determine what its tolerances are and what its actual conditions are all the way up and this should be done sometime. Because as industry comes in and another usage of this water comes in, and the cities along the river keep on dumping their sewerage into it, most of them have put in at least a primary treatment plant now, but I do know and can show you some treatment plants that are so inadequate that are still dumping in the river that they might as well not be there. All the way up the river, if a survey had been made up as far as the big dams, to determine the water quality, to determine what the water tolerances were, to see if there was anything could be done on this for the salmon fishery, you want to remember now that we have had a long and bitter and very bloody fight to take the commercial nets out of the Sacramento River charging that these commercial fishermen were the ones that were destroying the salmon fishery. Now the nets are out and the fishery is still going downhill. Now maybe the nets were causing it - maybe the last two years of nets have so depleted the good stock that we'll have to wait several years to build it back up. At the same time you have a tremendous commercial fishery on salmon, and you want to

remember that about 90 percent of the king salmon taken in the ocean are spawned in the Sacramento River. This is the main brood ground for this whole fishery, and so the idea was that we join with the board to make this very intensive study of the Sacramento River all the way up to the dams to determine what the problem was now, if there were problem areas in the river, and what could be done to correct it. The main problem that was involved all the way up was the salmon fishery. Now this thing amounts to millions of dollars in commercial value a year as well as millions of dollars in sports value. The money that was asked for for this survey, I think, would be money well spent. But before we go overboard here and get excited about where it's coming from or anything else, we should understand some of the background on this.

ASSEMBLYWOMAN DAVIS: I'm vitally concerned about it, but my main interest in this matter is who's going to pay for it? As we well know all of the Fish and Game Preservation Fund is license money, and I think we all recognize that the sportsmen were obligated this year to an amendment that was placed in the final conference report for an expenditure of the nets that were taken and the other equipment out of the Sacramento River and my concern here in this particular discussion is where is the money coming from? Because I don't want to see the sportsmen paying the entire bill. Now I can't speak for them, but . . .

ASSEMBLYMAN LINDSAY: Mrs. Davis, remember that the commercial fishery people also contribute to the Fish and Wildlife Preservation Fund. No where near as much as the sportsmen, but they do contribute.

ASSEMBLYWOMAN DAVIS: Well, that is true, but nevertheless, don't you feel that a proportion of money for this study should come from the general fund if it's a pollution problem, rather than the entire sum coming from the Fish and Game Preservation Fund? I don't believe that's fair. That was my point.

CHAIRMAN MEYERS: Well, Pauline, for your information, last budget session the \$18,900 and some odd dollars did come from the general fund. And they might as well have kept it as far as being able to do anything with it because this is the general consensus of opinion of all interested parties that there isn't sufficient money to conduct a proper survey in the matter. I believe that some of the members of this committee have to catch a plane, and that is the reason why at this time I asked Mr. Belotti to make this motion. Now Frank, I understand that you are going to amend that motion?

ASSEMBLYMAN BELOTTI: No.

CHAIRMAN MEYERS: It was made and seconded that as far as the funds are concerned, it would be left open - is that the understanding of the members of the committee?

ASSEMBLYMAN BELOTTI: That's correct.

ASSEMBLYMAN SUMNER: Well, I guess the thing that's bothering me is something that Pauline brought up and that is she asked why we had to make the study and the answer that we got as far as I'm concerned is that there is a problem with the salmon, apparently they are depleting in numbers. As I understand it, there is no conclusive evidence that the cause of this is pollution. And it would seem to me that, therefore, we're kind of putting the cart before the horse - that this is a proper subject for the Fish and Game Committee - maybe it's some natural cause in the ocean - maybe it's something else, maybe it's something we don't know anything about that has nothing to do with pollution, so what we're doing is you want to have a pollution study before you know that pollution is the problem, and the cause for the study is a game problem. It doesn't make sense to me. I can't see why this committee would do it. It should properly be in Fish and Game.

ASSEMBLYMAN DON ALLEN: Well, Mr. Chairman, I went along with your proposition and co-authored your bill last time. Bruce, the way that I looked at that situation when it came out of the committee was simply this that here for the first time you're doing a little pre-planning, that you're looking for preventative medicine rather than a cure - that you're really locking the barn door before the horse takes the air. So frankly, if you want to go along on a general fund proposition and leave the thing wide open and ask for a general, but I don't like to see a piecemeal job done. Now if we could get an all-inclusive situation and I agree that you've got to take a look at the upper region, because that feeds down into the Bay. There's no question that there's new disposal systems coming along. You people are growing up there along that Sacramento River; probably not with the great rapidity that we are, but some day we're going to stop growing and you're going to pick it up, so I'd like to see some place along this line somebody move in on a problem that we know is inevitable, and have some of the answers before we get caught with it. I don't like this crisis type of government that we've had to go through in the past, so if we can take a look at the situation, I'll say that reasonable survey - please don't try and confine it under the Fish and Game Department because I have about as much faith in those people getting something done and their knowledge at empire-building - it just doesn't set too well with me. If you want to turn it over to the regional pollution or if you want to put it over to these other people that I think know something about the work, then I'll go along with you.

ASSEMBLYMAN BELOTTI: Let me say this, as far as I'm concerned, this study is for the purpose of determining what is causing the loss of these fish - the salmon, particularly, and it involves pollution. The reason for that is that the money that was in the budget originally, the last budget session, was money that was coming out of the general fund as the Chairman pointed out, and it was to be done by the Water Pollution Board. It was

their recommendation that this be done. That's why I say that it is a pollution problem and, because it involves the fisheries, of necessity we had to bring the Department of Fish and Game into it.

ASSEMBLYMAN DOYLE: Mr. Chairman, we're about ready for the question, and I think Mr. Belotti's motion and my second should be re-stated so that there would be no question as to what his intent is. I think that we're all thinking along the same line - we're going in a different curve to get to it.

CHAIRMAN MEYERS: Well, Mr. Doyle, one brief observation. The original request for the survey of the San Francisco Bay and the Sacramento River studies came from the State Water Pollution Board and the Regional Board, and I believe, also, Fish and Game had added data to the information, but the initial request came from those departments; it was in the Governor's budget but due to the economy factor of the debate, the appropriation was recommended to be reduced from \$170,000 to \$18,000. I thought the people in attendance would like to know this information.

ASSEMBLYWOMAN DAVIS: I might say that at the time I know the agencies that made this request, I think primarily the major portion and the reason for this request constituted a deposit from the copper mines in the vicinity of Keswick Dam. I see Colonel Gorlinski out in the audience; I know he has been studying this problem, I know I've contacted him about two or three years ago, and I wonder if this committee would bear with me and if he would please make a statement and throw a little bit of light on the situation that exists in my district.

CHAIRMAN MEYERS: Colonel, would you mind coming forward? The only thing is, Pauline, we don't want to make you miss your plane.

ASSEMBLYWOMAN DAVIS: Well, probably you should have made sure I was on the plane before this was brought up.

ASSEMBLYMAN LINDSAY: Mr. Chairman, while the Colonel is coming forward, I think we want to remember that there is a study going on on the salmon population right now by the Department of Fish and Game, and that this pollution problem on the river as Don Allen has ably described it is part of the whole thing, and for once maybe we'll get a complete picture ahead of the crisis situation, and undoubtedly it has some place in the whole picture.

COLONEL JOSEPH S. GORLINSKI: I'm Executive Officer of the Central Valley Regional Water Pollution Control Board. Right now, I'm not quite sure what question you'd like to have me answer.

CHAIRMAN MEYERS: Well, to make sure we get it clear, I would suggest that Mrs. Davis rephrase her question to the Colonel.

ASSEMBLYWOMAN DAVIS: Colonel, as you know, you're very well acquainted with the situation in the upper regions of the Sacramento River pertaining to the pollution problem that has been called to your attention. As a matter of fact, you have filed a report on it, which I have in my office. Now I think it would be well to acquaint the committee briefly with what you feel you have accomplished there and some of the problems that exist so that we can have that material.

COLONEL GORLINSKI: Well, in the Upper Sacramento River we had a pollution caused by drainage from copper mines. We worked on that, had several reports made, and have succeeded in getting the discharger to put in a plant which will remove practically all the copper. This plant will be in operation by the latter part of this month. In addition to that, we are working with the Department of the Interior, Bureau of Reclamation, on some possible modifications of the Trinity Project to see if the thing cannot be further alleviated.

Could I interject here about this other study that seems to be causing a little confusion? Last year there were two studies proposed by two regional boards, one on the San Francisco Bay area by that region and one for the entire Sacramento River which my board proposed. The details of this study were worked out - after a series of conferences with the Fish and Game Department, the Department of Water Resources, the Department of Public Health and others. It is a survey which gives information which all of the agencies are interested in. It's of prime importance to the regional board because we want a base line on which to start figuring out what the waste assimilative capacity of that river is in order to have the discharge requirements on some basis of fact. At the present time we know very little about the quality of water in the Sacramento River. This survey will cost in the neighborhood of \$400,000, and as you know it was checked out of funds last year. Last Thursday my board resubmitted it in the budget which is going to the State Board as soon as I get back.

ASSEMBLYWOMAN DAVIS: Do you feel that it's actually a pollution problem?

COLONEL GORLINSKI: Yes, I think the preservation of fish life is part of it, but it encompasses many other things, and I'd say that it's not to cure pollution, it's to find out what is the waste assimilative capacity of that river, so we can establish waste discharge requirements on a reasonable basis and maintain it suitable for all these uses.

CHAIRMAN MEYERS: The motion has been made and seconded; so that we know what we're voting on, I'll ask the secretary to give us the motion.

MRS. LITTLE: That we include proper legislation at the next session to again make the money available for the proper study under the jurisdiction of the Department of Fish and Game on the San Francisco Bay area and the Sacramento River.

CHAIRMAN MEYERS: It doesn't include the Department of Fish and Game -- cross it out - to be left open to whatever funds are available.

ASSEMBLYMAN LINDSAY: In other words, we agree that there's a problem on the Sacramento River and it should be studied.

CHAIRMAN MEYERS: All those in favor of the motion indicate by voting "Aye", all those opposed - the motion is carried.

I believe we have a Mr. Norman Hume, Assistant Director of the Bureau of Sanitation of the City of Los Angeles, who requested to be permitted to make a few brief observations before this committee before we concluded our endeavors this afternoon.

MR. NORMAN HUME: I'm Assistant Director of the Bureau of Sanitation of the City of Los Angeles, under the Department of Public Works. Our Bureau is responsible for the operation, among other things, of the Hyperion treatment plant which was referred to here this morning. There seemed to be some question brought up in previous testimony regarding the condition of the beach that might be affected by the Hyperion discharge. Since 1951 when the new plant was placed in operation, we have complied with the requirements of the State Department of Public Health with respect to bacterial condition along the beach as reflected by daily sampling from about 28 sampling stations extending from the Malibu area clear down to the rough country south of Redondo Beach. Mr. Reinke previously mentioned something about other evidence there as being part of the standards.

We have recently passed a \$60,000,000 bond issue, about \$46,000,000 of which will be expended on the lower portion of the system including improvements to and expansion of treatment facilities; the construction of a seven-mile digested sludge outfall and a five-mile effluent outfall. This sludge outfall was placed in operation last November and, since its use, conditions with respect to physical evidence have been dramatically improved and all of our operations are under continuous and close scrutiny by the Regional Water Pollution Control Board and laboratory data is sent to the Department of Public Health to reduce it. Fortunately, when they built the plant, we were provided with a laboratory and have staffed it with competent people for making the types of analyses that are required under the various monitoring requirements now. Our laboratory has been approved by the State Department of Public Health as an approved laboratory. Furthermore, those samples are checked on a regular basis by parallel samples taken and analyzed by the Department of Public Health. We have presented a statement in written form here

which is available to your committee. It was sent forward to Sacramento the other day and I should like to read that, but I am sure you all have that. (See Exhibit V).

CHAIRMAN MEYERS: Mr. Hume, did you send this to the committee? I assume if you did so, it will be a part of the official record.

MR. HUME: We would like to have it a part of the official record.

CHAIRMAN MEYERS: Do you have an extra copy there now?

MR. HUME: I have one copy here only.

CHAIRMAN MEYERS: All right, if you will kindly leave it with the committee we'll make it a part of the official record.

Do you have anything further to say?

MR. HUME: No. I would be glad to answer any questions. I think the other matter I had in mind has been cleared by testimony by Mr. Reinke as far as the significance of samples and the health regulations regarding safe bacterial condition is concerned.

ASSEMBLYMAN LINDSAY: You're talking primarily about the big plant - the Hyperion plant?

MR. HUME: At Hyperion, yes, sir.

ASSEMBLYMAN LINDSAY: Aren't you using some of the water reclaimed from that plant to inject along the coast there?

MR. HUME: We have done that on an experimental basis. That experiment has been concluded and it has been concluded that it is a successful operation. Actually, it was through our cooperation, but the experiment itself was conducted by the Los Angeles County Flood Control District.

ASSEMBLYMAN LINDSAY: You're injecting water into wells to hold back the salt-water intrusion, as I understand it, about five second feet of water is the amount used?

MR. HUME: That is correct. Yes.

ASSEMBLYMAN LINDSAY: Have you stopped it?

MR. HUME: The experiment has been stopped. The question of whether to use that water or water from other sources of course, is up to the agencies that will be doing this work. Reclaimed water from the Hyperion treatment plant can be made available.

ASSEMBLYMAN LINDSAY: I just want to point out to the committee, I think we're still furnishing funds to buy the water to inject in there from the Colorado River system, and if water can be used from the Hyperion plant it probably could be used at a lower cost, and if it has been a successful experiment, I think we ought to encourage them to go ahead and use this water. There was no adverse effect on the water table or the injection wells or anything else from the use of it, was there?

MR. HUME: So far as I am informed, no, there were no adverse effects.

CHAIRMAN MEYERS: Thank you, Mr. Hume. Mr. Herb Davis, you are on the agenda.

MR. HERBERT C. DAVIS: I represent the California Fish Cannery Association and the Industrial Coordinating Council for Air and Water Waste Control.

Mr. Chairman, I may be able to make the committee very happy at this moment. You indicated this morning that it was possible that you will have another concluding meeting later in the year, perhaps in San Francisco.

CHAIRMAN MEYERS: That is the thinking of the committee.

MR. DAVIS: All right. The purpose of my appearance before this committee was to see if I couldn't round up a little bit for you. The highlights of the testimony that you have taken over a series of three meetings. You had a multitude of material presented before you, a lot of it conjecture, a lot of it rumor, some of it fact. One of the things that is outstanding, I think, is the area of agreement that appears particularly in this hearing as to what might be done with respect to the water pollution control law. Now if it's the intention of the committee to have another hearing, I would like very much to suggest that you go swimming and that I make my appearance at the conclusion of your final meeting where you will have perhaps finalized some of the thinking of the committee, at least the transcripts will be available and I can make then a brief statement on the areas of agreement and the areas of disagreement that I think you can expect to hear about from industry. After all, when your work is completed and you have made a report, the assumption is that a final gesture will be the introduction of bills covering those areas that you felt needed correction, at which time, of course there would be rather full debate on the bills themselves. I think I can be of most assistance to the committee if as a concluding matter of all of your hearings I could point out for you the areas of agreement and the areas of disagreement in the philosophies of both the existing law and the proposed changes, many of which are quite valid. So if you are anticipating that I will forego this opportunity and let the committee relax from your hard work.

CHAIRMAN MEYERS: Thank you, Mr. Davis. The committee does plan on holding a meeting the latter part or some time in November. As to the exact place, I believe it will be in San Francisco.

MR. DAVIS: I feel that it's sort of a round-up from perhaps one who like yourselves has sat through all of these meetings but on the other side of the bar and give you the benefit of our thinking of where I believe the whole thing boiled down actually brings us to.

ASSEMBLYMAN LINDSAY: I just want to comment, Mr. Chairman, that in our first meeting there was considerable evidence that industry, particular members of industry, were contributing to the pollution of the area; in this hearing we have had no evidence given to us at all that industry as such or a single industry as such is contributing to the pollution of any waters in Southern California. The problem seems to be just people. The pollution problem seems to be the outfalls from the great cities and population centers. I think this is quite a difference and should be remarked on between the two hearings.

CHAIRMAN MEYERS: I'd like to thank Mr. Davis for coming forward and agree that we will wait to have your review at the final concluding meetings.

Don, we have a motion still pending here which I have had. Would you mind if I get that out of the way, please? Earlier a motion was made by Mr. Doyle and duly seconded dealing with some of the beaches here in the southern part of the state, and as was discussed at that time, I assumed the motion would be made dealing with the beaches in the other sections of California. So I have a written motion here which I will read at this time and move and I'd like to have it duly seconded. It is not the normal procedure for the committee chairman to make these motions, but with the element of time, this is what we should do.

I would move that the committee request from the appropriate state agency a report on the condition of the beaches of California which are now closed and/or are posted because of pollution or contamination and why certain posted beaches are still being used by the public; that these same agencies report on procedures for monitoring these beaches and waters which has been indicated by testimony presented may result in dangerous contamination but not resulting in quarantine.

ASSEMBLYMAN DOYLE: I'll second it.

CHAIRMAN MEYERS: It has been moved and seconded that this motion be adopted. Any questions? All those in favor vote by "Aye." Those opposed. It is so ordered.

ASSEMBLYMAN DOYLE: Following Assemblyman Lindsay's statement a moment ago, I feel that we are all interested in the pollution problems in California, whether they're coastal or inland valleys, and I think we have heard testimony here to prove and show that industry is interested, that the fishermen, the sports fishermen, the commercial, the people in general are interested in the problem. We may be losing sight of the fact that due to the growth in California nearing some 14,000,000 people, these problems are bound to crop up. It's just one of those things that happens, and when we have the problems we have had in California in recent years, somebody is going to get hurt. Now I believe that the present law, although perhaps some changes are in line, offers some equity for the problem, and I think that one thing this committee should bear in mind when we work out the final results of any legislation that we do not try, because we feel we have the votes, to pass one-sided legislation, that we work for legislation that's going to offer equity to all concerned.

CHAIRMAN MEYERS: Thank you, Assemblyman Donald Doyle.

ASSEMBLYMAN LINDSAY: Mr. Hummel, the new president of the wildlife groups here in California, submitted some questions to us which I hope with his permission that we will skip formal asking because I believe that most of them are answered or will be answered in the testimony when it's put together, and particularly in the report by the five directors. They will not be ignored. They will be included as questions that are pertinent and will be considered and I just wanted to make this comment so that he knows that we don't receive material here at the committee and brush it aside without considering it.

CHAIRMAN MEYERS: Thank you, Assemblyman Lindsay. I believe a gentleman, John H. Engle, has requested to be able to say a few brief words before this committee before we conclude.

MR. JOHN H. ENGLE: I'm from Escondido, California. I'm very much interested in the water pollution problems that we have in general, but I'm more interested in the waste that is occurring and should not occur to the general public as well as this state. I, myself, am using sewer water in the Escondido area in irrigating trees and other plants.

CHAIRMAN MEYERS: Mr. Engle, may I ask at this point, are you speaking for any particular group or as a private citizen?

MR. ENGLE: As an individual. I also used to use fertilizer from these facilities as well as other facilities and also use numerous other means like saving the waste from oranges from the packing plants around Escondido in order to build up the soils again as well as using means how to build up granitic-type soils and build fertility and humus into those soils, creating soils where they do not exist, which is much the case in our area where we have a granitic base and where over thousands of years, due to

the arid condition of the general climate the soil has never been very richly developed. I would like to see this particular development expanded that we go to pumping water back underground as was just mentioned a little while ago at the Hyperion plant at Los Angeles and that that water at some distant point be repumped again and reused either for industry or for private use. Some of it could be used for irrigation, others might be used directly, and I think that particular situation will be forced upon us from time to time that we have to utilize those waters as well as the humus materials and we need them badly, both from the standpoint of the water as well as the fertility of the soil. Thank you very much.

CHAIRMAN MEYERS: Thank you, Mr. Engle.

Before we make our concluding observations, is there anybody in the audience who desires to come before the committee and make any additional presentation or fact? As we indicated earlier, we want to secure the thinking of all interested parties on this important matter, and if you did not wish to appear before the committee formally and if you have prepared testimony to leave it with the Sergeant-at-Arms, Mr. Williams or the Committee secretary.

MR. LEONARD HUMMEL: I am president of the California Wildlife Federation. You heard the statement of Dick Lane which represented the position at the present time of the California Wildlife Federation. It did not contain specific recommendations as such. We did add a few the other day at our annual meeting in San Rafael and between now and the November meeting of this subcommittee, we expect to firm up the entire program that we expect to carry into the Legislature next spring, or next January. That will be definitely presented to the Legislature first of all to this subcommittee.

CHAIRMAN MEYERS: Mr. Hummel, was that the meeting which was held at the Marin Rod and Gun Club?

MR. HUMMEL: That's right.

CHAIRMAN MEYERS: I was in attendance.

MR. HUMMEL: The best meeting we've ever had.

CHAIRMAN MEYERS: Does anybody else desire to come before the committee? As far as the transcripts are concerned, again for those in attendance, I would suggest that if you want a copy of the transcript write very soon to the Committee on Conservation, Planning and Public Works, Subcommittee on Bay and Water Pollution, State Capitol, Sacramento. I believe Assemblyman Lindsay made it very clear that it will be a minimum of 90 days before the transcripts will be available; because, as you can appreciate we have had a tremendous amount of material which will have to be edited

and proof read and put into final form. At this time I would like to say to Assemblyman Bruce Sumner, in whose district we are holding our meeting today, and who is a member of this committee that we enjoyed holding the meeting in the pleasant and beautiful Newport Beach, and likewise to express the thanks of this committee to the Mayor and the other officials and local citizens who have made the stay of this committee a most pleasant one.

The meeting stands adjourned.

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SPOTLIGHT ON SEA IN SAN DIEGO
\$133,000 PER YEAR BIOLOGICAL SURVEY TO
SEPARATE FACT FROM FANCY

Dennis A. O'Leary, Executive Officer
San Diego Regional Water Pollution Control Board

Taking its cue from long-range ocean research now being conducted by the State Water Pollution Control Board, the City of San Diego has launched an impressive study of its own. A team of scientists are scouring the ocean surface, waters, bottom and shoreline in a 135 square mile area extending from the Mexico - United States Border to the mouth of the San Diego River. From their probings will be developed the most complete combined physical and biological descriptions of this portion of the Pacific Ocean ever made.

Arrangements for the study began after discussions between the City and Water Pollution Control Board people. San Diego is now in the final phases of solving one of its major problems, the pollution of San Diego Bay. For a number of years, engineering reports have recommended removal of all municipal waste discharges from the Bay as the only practical method of meeting in-Bay waste discharge requirements. Design of a system to divert treated effluent out into deep ocean water is now being pressed forward. Between 25 and 30 million dollars will be spent by San Diego to provide the needed intercepting sewers, new treatment plant and disposal works. Consulting engineers for the system have been instructed to plan safe, satisfactory waste disposal for the entire metropolitan San Diego area for the next forty years. Effluent will

be dispersed at some point within the ocean study area, beginning in 1962 or 1963.

Aware of the enormous recreational and economic value of its offshore waters, San Diego is also aware that life and other conditions in this salty world are now rather poorly catalogued. What type of small animals inhabit the ocean floor throughout the zone being investigated? How do their numbers and health vary with location, depth, temperature, salinity, season? Just how abundant is plant life, from the giant kelp to the algae clinging to rocks in the tidal pools? How much do we know or can we find out about the variety and number of free-swimming forms, from the fishes to the tiny plankton? Is the bottom clear sand or rock, or are portions of it covered with mucky decayed vegetation, similar to sewage solids? The answers to these questions and many more, presented in a report which relates each to the total picture, are essential if the effects of a future discharge are to be assessed with any degree of accuracy.

Research being carried on off the entire Southern California coast for the State Water Pollution Control Board will, in a few years, provide some of the answers. The floating laboratory of the Allan Hancock Foundation for Scientific Research, Valero IV, collects a variety of ocean samples at a number of points off San Diego twice each year. Because of the range of the State study - from the Border to Point Conception - the resulting data will not be published in final form until 1962. San Diego will follow this survey closely as it progresses. At the same time, the City desires a report on its receiving area much sooner and, understandably, wishes to supplement the State program with much more intensive

sampling. The two ventures will dovetail, rather than duplicate each other.

In the first year of the study, scientists will visit 25 offshore stations once each month to collect samples and make observations. Special instruments which mechanically record changes in temperature at varying depths will be lowered into the ocean at each station. An electronic device will be used to measure water transparency, both near the surface and at greater depths. Color photographs of the ocean surface will be taken, and these will be supplemented by notes on the appearance of the ocean to the trained eye of the oceanographer. Water samples will be collected at each station for chemical analyses. Some of these samples will be taken close to the surface and others will come from depths up to 600 feet. When special conditions, such as a red tide, occur, additional sampling will be done and laboratory tests will be expanded to include naturally present chemicals associated with the condition. Thus, close surveillance will produce what might be considered a diagnosis of the physical condition of the ocean water.

The underlying bottom will also be subjected to close scrutiny. Skin-diving scientists or, in deep water, special equipment operated remotely from the surface, will extract small portions of the ocean floor where possible. Brought to the surface, these samples will be examined by skilled technicians, then rushed to the laboratory for analysis. Thus, the investigators will ferret out the areas where quantities of organic material have been deposited naturally on the ocean bottom. Where oceanographers have the opportunity to dive for samples, their skilled observations will, again, add to the value of the assembled information. "Information

thus obtained will be more readily comparable to that which improved techniques five or ten years hence will produce," say the underwater scientists. One might consider this part of the investigation a check on the cleanliness of the ocean floor.

Besides the chemical and physical characteristics so important to a healthy and favorable marine habitat, the actual ocean flora and fauna will receive very close attention. Again, the purpose will be to describe conditions as they exist before the ocean discharge of treated sewage is initiated. Equally important, however, is the need to compare the abundance and type of marine life present to the physical and chemical condition of the ocean and, if possible, to relate changes which are constantly taking place in the dynamic organization of life beneath and in the sea to naturally changing conditions of the ocean's waters. Creatures observed range from single-celled diatoms to commercial and game fish, from microscopic phytoplankton to the giant kelp. Bottom-dwelling animals, which are so important in the food cycle, will be enumerated as part of the bottom sampling program already described. At each off-shore sampling station, the tiny organisms which swim or are suspended in the water will be captured in sieves at different depths. These bits of life, vital to a healthy balance in the ocean will be identified and counted in the laboratory. Because some of the water-borne organisms are responsible for "red tides" observed from time to time off the coastline, scientists will put to sea for special biological studies of any red tides which may occur.

Along twenty miles of beach, selected shore stations will be visited by marine biologists at least four times each year.

Not only will the scientists obtain a description of the plant and animal life clinging to the rocks or buried in the sand at the shoreline, but they will also scan aquatic plants observable from shore. Tarry and oily deposits and naturally occurring scums and films will be carefully watched. Records of beach litter and debris, such as kelp washed ashore, will be kept. Data on kelp deposits now being compiled at Scripps Institution of Oceanography are to be used. Information on kelp conditions will probably be obtained through correlation with kelp research being carried on by the Institute of Marine Resources at the University of California, La Jolla, for the State Department of Fish and Game and the State Water Pollution Control Board.

In addition to amassing facts on the complex physical-chemical-biological organization which contributes to support of fish life, San Diego will include in the picture a record of fish caught off the metropolitan area. State Department of Fish and Game fish catch statistics for the study period will be entered in the report. Recognizing that a myriad of factors other than waste discharge may vary the availability of fish at any particular time, the City is asking the scientists to relate fish caught per unit effort to conditions bearing upon the catch, if possible.

An extremely important ocean characteristic to be protected, from the recreational point of view, is healthfulness. Samples are now being collected for bacteriological analyses throughout the area. Even bottom mucks will be subjected to coliform determinations. These samplings will supplement similar samplings performed by the San Diego County and the State Departments of Public Health, to provide background information on present ocean cleanliness.

After the first year of the study has been completed, its scope and details will be broadened or restricted. Whether the project will become larger or smaller depends upon what is determined during the year's work, recommendations of the City's consulting engineers, recommendations of the Board of Consultants of the State Water Pollution Control Board and the ocean waste discharge requirements, yet to be established by the Regional Board. Ocean monitoring specified in the requirements will have similar objectives to those of the study and may alter the nature of the study to some extent.

Comments of the Board of Consultants of the State Water Pollution Control Board will be sought periodically by the City because that group can readily coordinate the local study with the more extended State study. The consultants developed specifications for the Allan Hancock Foundation ocean research. Now they have the task of reviewing progress of that project from time to time. Similarly, the State Board Consultants, at the request of the City, produced the basic technical specifications for the San Diego study, after six months of work with the City, Regional Board staff and Scripps Institution of Oceanography. Changes suggested by the State Board Consultants as the study progresses will relate only to basic data gathering and will have nothing to do with plant location or design. Recommendations for the latter type of change will originate with the consulting engineers now designing the system. Regardless of contemplated changes, San Diego, of its own volition, plans to continue the cooperative program well after ocean discharge begins.

Three firms of oceanographic scientists, Marine Advisors,

Geological Diving Consultants and Scientific Diving Consultants, all of La Jolla, have pooled their talents under the name of San Diego Marine Consultants to carry out the survey. A \$133,000 contract for the first year was announced by the City in May. "I don't spend 30 million dollars very often, but when I do I'm going to be sure it's well spent," says City Manager George E. Bean. As a result, a major California city has voluntarily assumed responsibility for drawing a scientifically accurate, detailed picture of biological conditions to be protected off its shores. This enlightened attitude is a great source of satisfaction to water pollution control workers, who look upon education of dischargers as the quickest way to long-lasting protection from pollution.

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SAN DIEGO COUNTY WILDLIFE FEDERATION

30 June 1958

California Legislature
Assembly Interim Committee
Conservation, Planning and Public Works
Room 3126, State Capitol
Sacramento 14, California

Attention: Francis C. Lindsay, Chairman

Dear Mr. Lindsay:

The members of the San Diego County Wildlife Federation request inclusion of the following statements in the records of the hearing at Newport Beach on July 1 and 2, 1958 in lieu of personal appearance and verbal testimony.

The San Diego County Wildlife Federation wishes to first compliment the State Assembly for having brought this problem so forcefully to the front in the interest of public recreation and marine life conditions. It is not the purpose of the written testimony to criticize existing statutes nor to condemn action to date, but rather to suggest means of augmenting a more effective approach to critical problems of vital interest to Wildlife, Sportsmen's and Recreation groups. To summarize our position, we submit the following recommendations for your consideration:

1. Appointment of an additional member to each Regional Water Pollution Board. Such a non-political member should be well qualified, informed and representative of all groups of water enthusiasts.
2. Closer coordination between Federal Pollution Control and corresponding State and County agencies.

3. State subsidy be provided those communities where waste water reclamation programs are publicly financed as part of water pollution elimination. Those communities not reclaiming waste waters would be ineligible for state assistance and should be subject to close scrutiny by the Water Pollution Control Board.
4. State funds be provided to educate the public as to the importance of the pollution control program for the conservation of water. Free testimonial films, lectures, printed brochures, etc. should be made available to all interested groups.
5. Replace administrative with legal actions, including mandamus and peremptory procedures, to expedite corrective action.
6. a. Continue expanding research to determine relationship between water pollution and the disappearance of kelp in the costal and off-shore areas.
b. Introduce research to determine the relationship between water pollution and the disappearance of eel grass in the San Diego Bay.

In the interest of the foregoing recommendations, we should like to introduce the following substantiating testimony:

1. The addition of a non-paid member to each regional board would provide the board with pertinent, accurate and unbiased data relative to pollution problems within the respective areas. This would enhance the value of the committee in permitting more rapid and conclusive results pertaining to the problem.
2. The close coordination between agencies of the Federal Government and the state and county agencies is of tremendous importance because in San Diego County vast areas are owned and occupied by the Federal Government. Since federal control and

state control of water pollution frequently are incompatible, damages to our already limited recreational facilities are resulting. San Diego County is most seriously handicapped by lack of fresh water facilities and therefore must use every effort to conserve its coastal and bay waters for use by a rapidly increasing outdoor-minded citizenry.

3. Communities such as San Diego, that are presently dumping disposal water into coastal areas, should be considered for State assistance in developing water reclamation programs through closed circuit systems wherein waste waters are pumped into de-oxidizing ponds for de-contamination, thereby supplementing our underground reservoir supplies. Such programs would not only conserve water, but would provide additional recreation activities for our rapidly growing population.
4. The serious attention of the citizenry to its dwindling recreation areas in San Diego should be brought about by means of planned educational programs, wherein full understanding and early recognition of the problem can be obtained, so that public demand will more easily forestall a crisis. This type of program can be carried on through organized groups, newspapers, radio, television and other local mediae communicating educational data as provided through a central committee. An immediate result of the recommended aggressive education program would be an inducement for the public to reduce necessary legal action to enforce the control and statutes.

In further support of our recommendations the following information is submitted as evidence of the ever-growing recreational activities involving our coastal waters, inland fresh waters and recreation

waters. Statistics provided by the San Diego Tax Assessor's office indicate that in 1957 there were 5500 registrations of privately and commercially owned boats. The registration through June 30, 1958 was 9800. This indicates a growth factor of 78.2%. These statistics are presented to high-light the evergrowing demand being placed on our rapidly dwindling facilities in our recreation areas.

The San Diego County Wildlife Federation is very appreciative of the opportunity given to it to place the foregoing testimony in the record. The membership wishes to extend an invitation to the Assembly Interim Committee to come to San Diego to hold further hearings at such time as may appear desirable. Meanwhile the Federation will be pleased to cooperate in any way possible to assist the committee in its work.

Yours very truly,

/s/
H. D. Cromartie, Chairman
Water Pollution Committee
San Diego County Wildlife Federation

HDC:mm

PUBLIC NOTICE RELATIVE TO OIL SPILLS

TO ALL PERSONS ENGAGED IN HANDLING PETROLEUM PRODUCTS ON NAVIGABLE WATERS

Pollution of the seas and harbors by oil is a very serious problem.

It is DANGEROUS. Any spill is hazardous to shipping and harbor facilities and could result in the loss of life.

It is EXPENSIVE. Effective clean-up of even minor spills is very costly.

It is ILLEGAL. Not only the company involved, but individuals as well are subject to prosecution for oil spills under Federal, State and local laws.

The records indicate that most spills involve only a small amount of oil and are the result of preventable accidents or negligence. Common excuses which are repeated time and again for oil spills include:

"Overflowed while topping off."

"Error in valve manipulation."

"Siphoned through air vent."

"Air Bubble."

"Too much pressure."

"Left to secure another valve and tank overflowed before I could get back."

This type of excuse does not indicate willful negligence, but does indicate inattention and carelessness on the part of those responsible.

Oil pollution has been the subject of international conferences and agreements. Stringent anti-pollution laws are in force in many countries besides the United States. There are State and local laws prohibiting oil pollution. The Oil Pollution Act of 1924 (33 U.S. Code 432 to 437) is the basic Federal anti-oil pollution law of the United States. It prescribes severe penalties for violation, including

suspension or revocation of licenses, as well as both fine and imprisonment. Administration and enforcement of the law is a responsibility of the Secretary of the Army, acting through certain officers and employees of the Corps of Engineers, U. S. Army. Enforcement of the law is also a duty of the U. S. Coast Guard and U. S. Customs Service.

Thirty-seven oil pollution incidents in Los Angeles and Long Beach Harbors were reported during the calendar year 1954 and the first six months of 1955. Investigation of those incidents took time and money and in every case there was the possibility of prosecution. Prosecution normally will be undertaken when there is sufficient evidence to assure conviction.

We are taking this means to solicit your fullest and continuing cooperation in preventing oil spills. Careful attention to equipment and procedure by management, to planning by supervisors, and to the job at hand by those who actually do the work can be more effective in preventing oil pollution than all the laws ever written. The prevention of minor spills can result in the prevention of a major catastrophe. The earnest desire of all concerned with the problem of oil pollution is to prevent oil spills rather than to obtain convictions for violations of the anti-pollution laws. Your constant alertness to this problem will be the most effective means of controlling careless spilling with resultant economy, safety and compliance with the anti-pollution laws.

/s/
ARTHUR H. FRYE, JR.
Colonel, Corps of Engineers
District Engineer
Los Angeles District

/s/
JOHN ROUNTREE
Captain, U.S. Coast Guard
Commander, 11th Coast Guard
District

/s/
CARL F. WHITE
Collector of
Customs

EXHIBIT IV

Paper presented by A. M. Rawn, Chief Engineer
and General Manager, Los Angeles County
Sanitation Districts, at L.A. Chamber of
Commerce, Water & Power Conference, held
May 27, 1958

The suggestion that domestic sewage and industrial wastes be utilized as a raw water supply comes as an unpleasant surprise to many. Response to the suggestion includes at times, terms such as "unthinkable", "barbarous", etc., etc. Unfortunately, most folks have not thought the thing completely through or they would realize that the water in sewage is not changed or altered from its original condition by being in such distasteful association and that water from literally thousands of cesspools throughout this and other areas is daily recharging the underground collecting pools. From such aquifers water is recovered and reused unrestrictedly in agriculture, industry, and for domestic purposes of all kinds. If the path of travel to the aquifer, from the point where the sewage water enters the soil, is sufficiently long, and the soil through which the water passes has the proper characteristics, the oxidation of organic substances in solution, and the removal of organic and inorganic substances in suspension, will be complete. Indeed, well oxidized sewage treatment plant effluent from a modern treatment works is difficult, and at times impossible, to detect even though injected directly into the aquifer instead of being allowed to seep into it from leaching beds and percolation basins.

It is generally acknowledged, as a result of investigation and experience, that those engaged in the collection, treatment and disposal of sewage and industrial wastes have at their disposal mechanical, bacteriological and natural processes capable of producing from such wastes a perfectly satisfactory water for unrestricted use in agriculture and industry, and, with the addition of ground recharge, for domestic purposes. If for the moment at least, you will concede this, I'll devote the remainder of my ten minutes to giving you a brief word picture of the quantity and quality of water to be locally derived from this source, its location and availability, and a description of a contemplated method which will do the job of reclamation at a lower unit cost than is in prospect for any other additional source of water available currently to this area.

Daily there flows to the ocean, from the metropolitan area of Los Angeles County, some 465 million gallons of fresh water which has been badly soiled during its progress through the homes and industries in metropolitan area. As a result of this experience the water has been placed beyond the pale of reuse unless biological, chemical, and mechanical treatment are employed for the removing of its unwelcome constituents. Of this 465 million gallons per day, the water from about 60 per cent (280 M.G.D.) is still in such condition as to be subject to recovery and reuse so far as its pollution and contamination aspects are concerned. Furthermore, some 45 million gallons per day of the acceptable flow is currently being concentrated in an area admirably suited to reclamation of the

water content and its return to the ground waters of the County for subsequent reuse. Some 250 million gallons per day do not concentrate at or near areas where return of the reclaimed water to underground aquifers is easy or convenient. Reclamation and reuse of all or part of this 250 million g.p.d. will depend upon costs other than those incidental to removal of the sewage constituents. An important exception to this latter is the reclamation of water from sewage at the sewage treatment works of the City of Los Angeles at Hyperion and its return, through injection wells, to the underground along the sea coast to form a fresh water barrier designed to prevent the flow of ocean water landward into over-drawn fresh water aquifers.

Two large and extensive systems of sewers for the collection and removal of sanitary sewage and industrial waste have been constructed in Los Angeles County. The existence of these two systems is a most important factor in developing the reuse of sewage as a raw water supply. The two systems comprise thousands of miles of laterals or collecting sewers, hundreds of miles of large diameter trunk or concentrating sewers, scores of pumping stations, two relatively large sewage treatment plants, and four others of modest proportions. It is repeated here for emphasis, and will be further amplified, that the opportunity for almost immediate water reclamation, apparent to those familiar with such an operation, would not obtain were it not for these two large systems.

There is a vast difference between (a) having as a raw water supply, sewage and industrial waste diverted from a sewer, as and when convenient, in such amounts as are deemed desirable, and of such quality as will yield usable fresh water, and (b) constructing and operating a sewerage works which must serve, first, as a sewage disposal process, and secondly, as a water reclamation plant. In effect, the two large sewerage systems, with their disposal works already completed, place the auxiliary operation of water reclamation plants in the first category; to the extent that these plants will not have to deal with continuous flows of sewage nor with disposal of the noxious and objectionable sewage solids and thus may be designed for, and built in, areas and under conditions which would not be countenanced were they sewage treatment works, per se.

There is no question about the need for additional water for this area and while it is readily recognized by all concerned that this need may not be more than partially satisfied by water reclamation from wastes, an engineering plan is envisioned which will be capable of promptly offering some 45 million gallons per day of fresh water for unrestricted use at a cost which is most attractive.

Fortunately, and again with an assist from the two large sewerage systems now in existence in the metropolitan area, the economics of the situation do not depend upon the volume of water to be reclaimed, since the reclamation process envisioned contemplates a somewhat widely distributed group of relatively small plants, each situated appropriately near a constant flow of acceptable sewage and industrial waste, from which plants the reclaimed water may be economically transported to percolation beds for natural filtration into the underground aquifers. Each small plant will be a complete unit in

itself and since the process of sewage disposal does not depend upon it or its counterparts elsewhere, it will not be subject to the process vagaries of sensitive oxidizing sewage treatment plants which latter at times produce a totally unsatisfactory effluent. If by chance a foul condition should develop in the small unit the entire contents of the unit could be returned to the sewer from which the supply had been initially drawn and a satisfactory condition re-cultivated within the unit itself from a more satisfactory raw water supply.

From the immediately foregoing statements you may probably deduce that what I am trying to say is that a wide distribution of small plants may be operated at about the same unit cost as a single larger plant, and in addition far better guarantee the quality of the effluent or reclaimed water produced.

It has been demonstrated many times in many places, and is being demonstrated daily in three small units which the Sanitation Districts are now operating in the metropolitan area, that good water may be reclaimed from sewage and either utilized directly in agriculture and industry or allowed to seep into underground basins, undergoing excellent, natural, slow sand filtration in the process and reaching the aquifers in such a condition as to be used without restriction. It is also being demonstrated daily that water recovery from wastes, plus all costs of its transportation to percolating areas, spreading, and spreading area maintenance may be accomplished for about one-half the cost of water imported from the Colorado River and from present indications less than half the cost for that proposed from the Feather River.

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Joint Report No. 1
City Engineer &
Bureau of Sanitation
June 25, 1958
Section No. 1

Honorable Board of Public Works
of the City of Los Angeles

Gentlemen:

BAY AND WATER POLLUTION ASSEMBLY INTERIM
COMMITTEE ON CONSERVATION, PLANNING, AND
PUBLIC WORKS OF THE CALIFORNIA LEGISLATURE.

TRANSMITTAL

Communication No. 69921

FROM

James F. Williams, Staff Assistant, Subcommittee on Bay and Water Pollution of the State Assembly Interim Committee on Conservation, Planning and Public Works of the California Legislature, inviting representatives of the City of Los Angeles to testify at the Hearing on Bay and Water Pollution to be held at the City Hall, Newport Beach, California, on July 1 and 2, 1958. The invitation asked for a statement of preference of date for testimony and further requests that testimony be in prepared form with sufficient copies for distribution to the members of the committee.

In addition to the invitation to testify received by your Board invitations were received by individuals within the Department of Public Works including W. A. Schneider, Norman B. Hume of the Bureau of Sanitation and Elbridge G. Studley of the Bureau of Engineering. Information of interest to the Subcommittee from the City of Los Angeles is included hereinafter representing the views of all above named.

RECITAL

The policy of the City of Los Angeles with respect to the treatment and disposal of sewage is unequivocally stated in a resolution adopted by the City Council on November 30, 1954, a pertinent part of which reads as follows:

"Whereas, it is the policy that the City of Los Angeles will provide and maintain facilities for the treatment and disposal of sewage which shall be, at all times, adequate in capacity and adequate for the protection of the public health and the public interests in this and neighboring

Communities, including maintenance of the beaches and coastal waters in an attractive condition suitable for recreational and other beneficial uses and equal to or better than the conditions specified by the State Agencies having control over such matters."

In carrying out this policy the city is currently engaged in the construction of improvements to the sewerage system costing 60 millions of dollars. Approximately \$46 millions of this amount are being expended on the lower outfall system, treatment plant expansion and improvement and submarine outfall system.

As evidence of its further concern regarding pollution matters the City of Los Angeles has enacted an industrial waste discharge ordinance administered by the Board of Public Works through the Bureau of Sanitation. The City has implemented the ordinance by the provision of 28 full-time engineering and technical positions directly concerned with industrial waste discharge and water pollution problems together with advisory and laboratory services as required.

Los Angeles ordinances prohibit the discharge of substances into the surface drainage systems which may cause impairment of the quality of surface or underground waters and limit the constituents of discharges into the sanitary sewerage system to insure treatability of the sewage, safety of personnel, freedom from damage to structures, and freedom from stoppages. The ordinances further require that unpolluted waters be discharged into surface drainage systems. The latter accomplishes two desirable ends in that overloading of the sewerage system is alleviated and the unpolluted water thus diverted may subsequently be recovered for a useful purpose.

In the design and operation of sewage collection and disposal systems, storm drain systems, and refuse disposal systems for a large city such as Los Angeles situated as it is in the heart of a vast residential, commercial and industrial complex, many involved problems are encountered that transcend local political and topographical boundaries. The very existence of the metropolitan area is dependent upon satisfactory solution of these problems and they cannot be solved without proper long range planning and financing.

In order to intelligently plan, basic criteria of limitations and requirements of control agencies should be firmly established well in advance of actual engineering design. As several agencies on the State level have statutory and regulatory responsibilities which are directly or indirectly related to pollution matters their coordination is a prerequisite for the successful initiation of any pollution control project.

Furthermore, there are local agencies such as county, adjacent municipalities and private interests involved in many important pollution problems. Their coordination is also necessary

to the success of any program and is a positive requirement to make completely effective the efforts already instituted by the City of Los Angeles as mentioned hereinbefore. Such coordination is best carried on at a regional level.

Since the implementation of the Water Pollution Control Act and the formation of State and Regional Water Pollution Control Boards, experience within Region No. 4 indicates that needed coordination of pollution control on a local as well as over-all basis has been effected. The regional approach to the many problems afforded by the present pollution control organization is a rational means to accomplish productive results. At present dischargers can with some degree of confidence proceed with plans for financing and design of pollution control projects to meet criteria set up in advance by the regional control agency of the state.

Insofar as the City of Los Angeles is concerned, evidence accumulated in the period of time since the Water Pollution Control Act was enacted shows no reason for changes in the law at the present time.

RECOMMENDATIONS

1. That your Board approve this report.
2. That sufficient copies be sent to the communicant for distribution to the members of the subcommittee on Bay and Water Pollution.
3. That the Subcommittee be informed that if further information is desired by it to be presented in person that the preferred date for such appearance is July 1, 1958.
4. That representatives of the Bureau of Sanitation and the Bureau of Engineering be authorized to attend the hearing.

(20297 EGS MB NBH LAP)

Respectfully submitted,

LYALL A. PARDEE, CITY ENGINEER

W. A. SCHNEIDER, DIRECTOR
BUREAU OF SANITATION

WATER DEPARTMENT
City of Long Beach, California
403 Municipal Utilities Building
Long Beach 2, California

June 26, 1958

Assemblyman Charles W. Meyers
Chairman, Subcommittee on Bay and Water Pollution
of the Assembly Interim Committee on Conservation,
Planning and Public Works
Room 3126, State Capitol
Sacramento 14, California

Dear Sir:

Thank you for your invitation to testify before the committee hearing to be held at Newport Beach on July 1 and 2, 1958.

I do not desire to appear in person at this hearing, but wish to file the following statement with the committee on this subject.

The Regional Water Pollution Control Board No. 4, whose area includes the City of Long Beach, has done an excellent job of administering the statutes as far as underground water is concerned. They have established reasonable standards for surface waste water disposal so as to protect the local groundwater aquifers.

Local control is the basic reason for the success of the program. This is due, no doubt, to fine Board membership and a well trained staff. The local control provisions should be strengthened in every way possible.

There are some items which have been neglected through failure to provide controls in the original law. These are water well construction standards and water well abandonment procedures. I am sure that you are aware of the need for amendments to include provisions for these two items, but wish to urge early action. Danger from faulty construction or unsatisfactory abandonment of water wells is a most serious threat to groundwater supplies in the Los Angeles basin area. Your consideration of these points will be appreciated.

Yours very truly,

/s/
Brennan S. Thomas, Gen. Mgr.
and Chief Engineer
Long Beach Water Department

HCL:ps

LOS ANGELES CHAMBER OF COMMERCE
404 South Bixel St.
Los Angeles 54,

June 30, 1958

The Honorable Charles W. Meyers, Chairman
Assembly Interim Committee on Bay and Water Pollution
Newport Beach City Hall
Newport Beach, California

Dear Mr. Meyers;

I am instructed by the Board of Directors of the Los Angeles Chamber of Commerce to present the following statement in connection with the work of your Committee on Bay and Water Pollution.

The Los Angeles Chamber of Commerce has for many years been actively interested in the matter of industrial waste disposal under conditions that will protect both the underground and offshore waters of California. A Committee of this Chamber served as the working group to prepare an ordinance adopted by Los Angeles County which became effective in August of 1946 and which has proven to be a highly practical and efficient vehicle for this area. This Chamber also participated in consideration of legislation adopted by the State of California in 1949.

Our continuing interest in the subject has led us to observe operations under the State Act and it is our opinion that a considerable amount of progress has been made in improvement of waste disposal in relation to protecting water supplies.

We believe that the general principles embodied in the present Act, whereby a substantial amount of authority is exercised through regional boards is the most practical, efficient and intelligent approach to the problem. We believe such a regional setup, with general provisions as are now lodged in the State Board is preferable to concentration of greater authority at the State level, where local problems might be faced with undue leniency, in some cases, and impractical restrictions, in others.

It would be remarkable if legislation enacted in the early stages of a program proved to be so perfect as to not need some improvements and we believe that your Committee is well justified in inquiring into the possible need of such amendments in this case (supplementing those of 1957). At the same time, we believe that any amendatory legislation should be in the nature of making more effective the principles and procedures called for in the present Act, speeding up of hearings and other processes, and clarification where doubt may exist as to proper interpretations.

Sincerely,

/s/
Harold W. Wright
General Manager

COLORADO RIVER BASIN REGIONAL WATER POLLUTION CONTROL BOARD
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June 30, 1958

Honorable Charles W. Meyers, Chairman
Subcommittee on Bay and Water Pollution
of the Assembly Interim Committee on
Conservation, Planning & Public Works
Room 3126, State Capitol
Sacramento 14, California

Re: Suggested Amendments to the Water Pollution
Control Act

Dear Sir:

At this board's regular meeting, June 26, 1958, the following was moved by Mr. Barker, seconded by Mr. McClintock, and unanimously carried:

This Board recommends to the Subcommittee on Bay and Water Pollution the following amendments to the Water Pollution Control Act in lieu of Recommendation F and Recommendations 15 and 16 contained on pages 5 and 7 of the 'Joint Statement of the State and Regional Water Pollution Control Boards to the Subcommittee on Bay and Water Pollution of the Assembly Interim Committee on Conservation, Planning and Public Works - April 2, 1958:

1. Amend Section 13060 of the Water Code to read as follows:

When it appears to a regional board that the discharge of sewage or industrial waste within its region is taking place contrary to any requirements prescribed by the regional board under the provisions of Sections 13053, 13054 and 13055 of the Water Code, the Board shall issue an order to cease and desist, and directing those persons, firms or corporations not complying with said requirements to comply forthwith.

2. Delete in its entirety Sections 13061, 13061.5, and 13062 of the Water Code.

Very truly yours,

COLORADO RIVER BASIN REGIONAL
WATER POLLUTION CONTROL BOARD

/s/
T. H. DONOVAN, Executive Officer

THD/ze

EXHIBIT IX

State of California - Department of Natural Resources
DIVISION OF BEACHES AND PARKS
1125 Tenth Street Sacramento 14

July 1, 1958

Assembly Interim Committee on Conservation,
Planning and Public Works,
BAY AND WATER POLLUTION
Meeting at Newport Beach, California

Gentlemen:

Doheny Beach State Park has been closed because of a dangerous sewage contamination problem, by action of the State Park Commission in San Bernardino on October 18, 1957. The minutes of the Commission covering this closure are as follows:

DOHENY BEACH STATE PARK: Mr. E. E. Frisby, Chief, Division of Sanitation, County of Orange, appeared before the Commission and presented copies of a letter dated October 15, 1957, addressed by the County of Orange to William L. Kenyon, District Superintendent of the State Division of Beaches and Parks, wherein he reports of the unsanitary condition as pertains to swimming and other recreational uses of the bathing beach within the confines of the Doheny State Park, Capistrano Beach. During extreme low tide, the waders are able to wade within 50 to 100 feet of the end of the outfall where sewage effluent is discharged. The County Board of Health in conjunction with the Bureau of Sanitary Engineering, State Department of Public Health, in September, 1957, made a survey of the beach waters in this area and the findings reveal that the waters within the confines of Doheny Beach State Park are contaminated with sewage, and to permit swimming or other recreational activities in the waters or on the immediate shoreline would result in jeopardizing the health of the people.

Deputy Chief Hanson reported that the beach should be posted against use and that the staff should work with the Dana Point Sanitary District in the installation of an outfall disposal facility.

It was moved by Commissioner Whitney that the Doheny Beach State Park be posted against use by the public and that effective October 18, 1957, the park be closed until such time as the sanitary condition is remedied to the satisfaction of the Commission.

Seconded by Commissioner Burns and approved.

At this same meeting of the State Park Commission, Mr. Dennis O'Leary, representing San Diego Regional Water Pollution Control Board, Region #9 discussed the plan of the Dana Point Sanitary District and requested the cooperation of the Commission in working out the details of

installation for an outfall sewage disposal facility at Doheny Beach State Park.

"It was moved by Commissioner Whitney that the Commission approve in principle the plan of the Dana Point Sanitary District for an easement across Doheny Beach, and the staff confer with the Dana Point Sanitary District to work out details of an easement agreement whereby the State will be benefited by the outfall sewage disposal facility development. Seconded by Commissioner Burns and approved."

Doheny Beach State Park was closed in accord with State Park Commission action, and the following information was compiled in a circular letter to answer inquiries in regard to the closure:

"Because of a dangerous sewage contamination problem which has grown to a point so as to threaten the health of any person coming in contact with its waters, Doheny Beach State Park was closed, effective October 18, 1957, as the result of State Park Commission action in cooperation with the requirements of the State Department of Public Health, the Orange County Health Department, and the Water Pollution Control Board.

"These agencies, responsible for the health and safety of the public, are carrying out exhaustive studies in regard to means of remedying this condition and re-opening the park as soon as it is safe to do so.

"Persons are warned against making bodily contact with the water of the ocean or lagoon and there should be no wading, swimming, fishing, surf-boarding or other activities which might cause bodily contact with contaminated water.

"After a series of tests the following information has been released by the health authorities:

(A) Bacterial counts of samples collected from several different stations, 100, 200, and 500 feet offshore, but in areas that are used extensively for swimming and other skin contact sports, were: 23, 23, 24, 62, 62, 130, 500, 700, 700, 1300, and 7000 ml. The upper limit of safety is 10 per ml.

(B) Dye tests show that the sewage field of one outfall sewer which was broken about 400 or 500 feet offshore reached the breakers within 15 minutes and that plastic colored pellets introduced into the outfall reached the shoreline within 25 minutes.

(C) There are three sewer outfalls involved in the contamination of the water. One is broken between 400 and 500 feet offshore and is discharging sewage effluent containing 700,000 coliform organisms per 100 ml.

"In view of the nature of the problem involving correction of the sewage collection and disposal and treatment system in

Capistrano Beach, Capistrano Palisades and Dana Point areas, it is anticipated that it will be necessary to keep Doheny Beach State Park closed to public use throughout the calendar year of 1958 and perhaps longer.

"Communications relating to the contamination problem should be directed to the Orange County Health Department, Santa Ana, California."

Following several meetings with Board members of the Dana Point Sanitary District, and with their engineers, the Staff of the Division of Beaches and Parks recommended that the sum of \$48,809 be requested in the 1958-59 fiscal year budget for the participation of Doheny Beach State Park in the proposed new sewage disposal plant and outfall (ocean outfall), planned by the Sanitary District. This item was subsequently approved for inclusion in the Governor's Budget, and passed by the Legislature.

At its meeting in San Francisco on April 18, 1958, the State Park Commission passed the following resolution, granting an easement to the Dana Point Sanitary District for a sewer outfall line over and across Doheny Beach State Park:

"DOHENY BEACH STATE PARK - Dana Point Sanitary District -
Approval of Sewer Outfall Easement."

"It was moved by Commissioner Kasch that the following resolution be adopted:

"WHEREAS, application has been made by the Dana Point Sanitary District under Section 5003 of the Public Resources Code of the State of California for an easement in, under and across a portion of Doheny Beach State Park for the purpose of installing and maintaining a sewer outfall line to connect with a proposed Sewage Treatment Plant to be erected by the District outside the boundaries of said State Park which will serve both City of Dana Point and subject State Park under a cooperative plan agreed upon between the District and the State of California; and

"WHEREAS, said sewer line will be a direct benefit to said Park in that it will permit the turning of sewage from Doheny Beach State Park into the District's proposed Sewage Disposal System; now therefore,

"BE IT RESOLVED that this Commission does hereby approve the application of Dana Point Sanitary District for an easement over a portion of Doheny Beach State Park for the purpose of installing and maintaining a sewer outfall line to connect with a proposed Sewage Treatment Plant to be erected by the District outside the boundaries of said State Park, conditional on satisfactory arrangements between State and District for construction and maintenance of the proposed facility.

"BE IT FURTHER RESOLVED that the Chairman and Executive Secretary of this Commission be authorized to execute a suitable agreement

incorporating the foregoing in behalf of this Commission and the State of California.

Seconded by Commissioner Burns and approved."

The Capistrano Beach Sanitary District has plans to construct a new sewage treatment plant and to install sewer lines. These plans call for a portion of the sewer lines and a pumping plant to be installed on State Park property, at the southern end of what is known as the Los Nietos addition to Doheny Beach State Park.

The State Park Commission, at its meeting in San Luis Obispo, May 15, 1958 acted as follows:

"It was moved by Commissioner Kasch that the application of the Capistrano Beach Sanitary District for an easement for a sewer line and sewage pumping station site on the land purchased as an addition to Doheny Beach State Park be granted, that the Commission recognizes that Doheny Beach State Park will be benefited by the installation of the sewer line and pumping station and that the staff be authorized to enter into an appropriate agreement with the Capistrano Beach Sanitary District including a provision that the easement should cease and the property revert to the State, if the standards of the Water Pollution Board are not met, and when the agreement is agreed upon the Chairman and Executive Secretary of this Commission be authorized to execute the agreement.

"Seconded by Commissioner Carrillo and approved."

The details of this agreement are now being worked out with representatives of the Capistrano Beach Sanitary District.

Construction of the sewer line and outfall over Doheny Beach State Park is expected to start immediately by contractors for the Dana Point Sanitary District.

Construction of the sewer line and pumping plant at the southerly end of the park has not as yet been scheduled to our knowledge.

The State Park Commission and the Division of Beaches and Parks are anxious to reopen Doheny Beach State Park to the public and will do so as soon as the appropriate health authorities inform us that the contamination has been corrected.

Respectfully submitted,

/s/
WM. L. KENYON
District Superintendent,
District 6.